

FIG. 1A

09855851.051601

09855851.051601

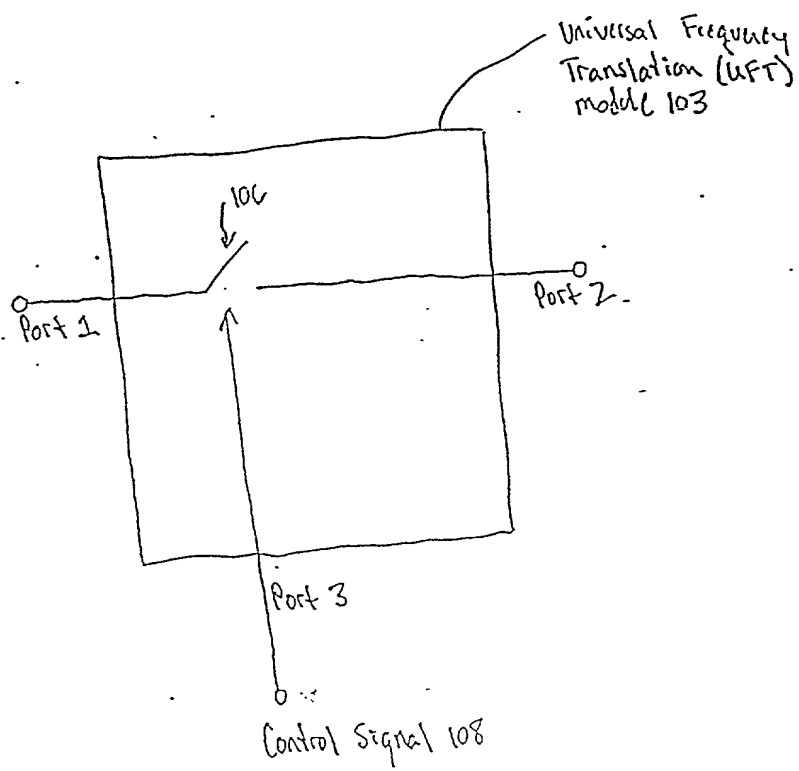


FIG. 1B

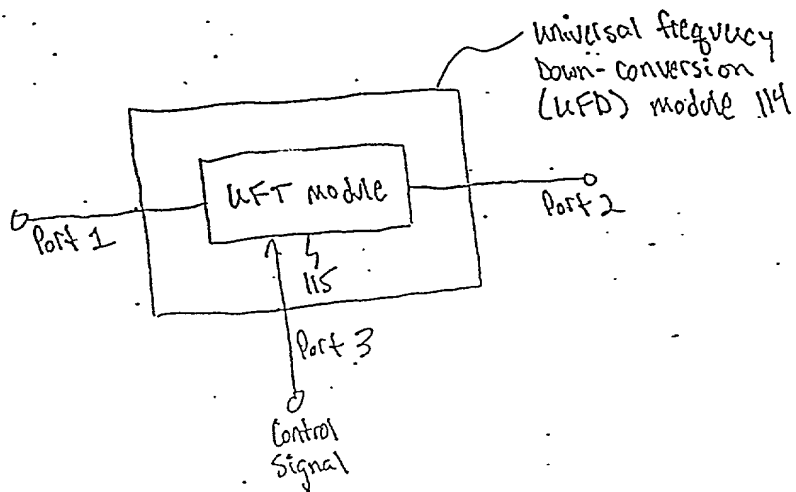


FIG. 1C

09855851.051601

09855851.051601

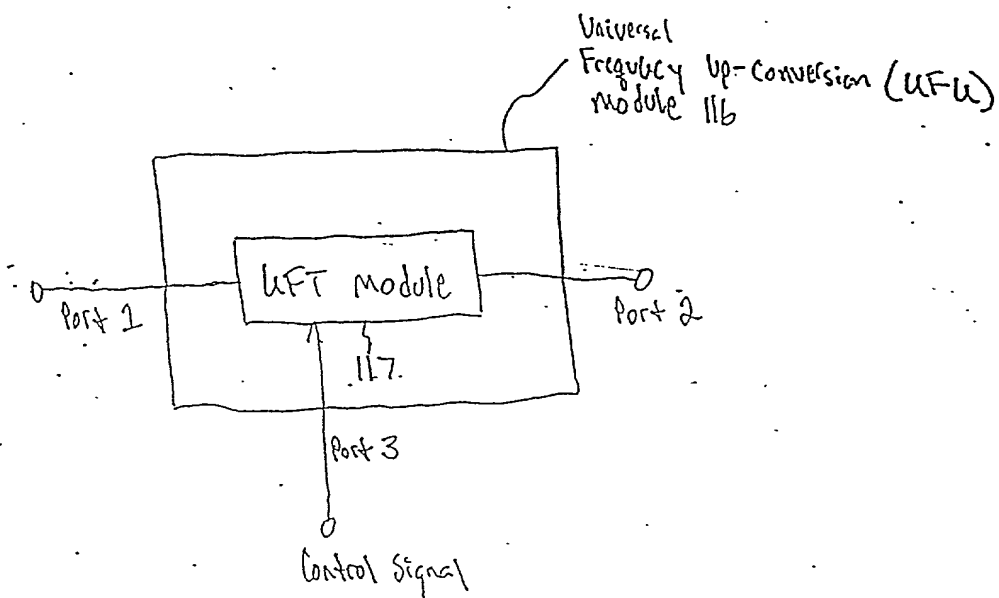


FIG. 10

Universal Frequency
Translation (UFT)
module 202

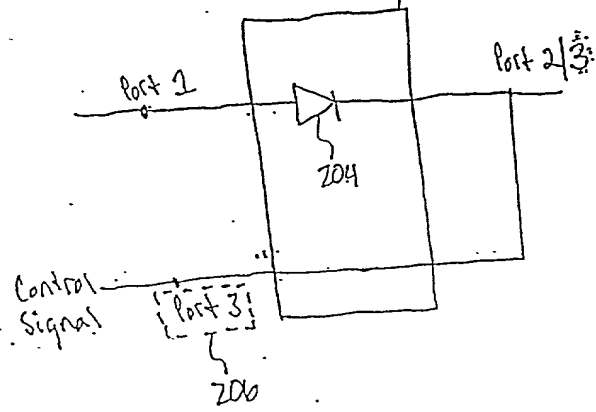


FIG. 2

09855851.051601

3

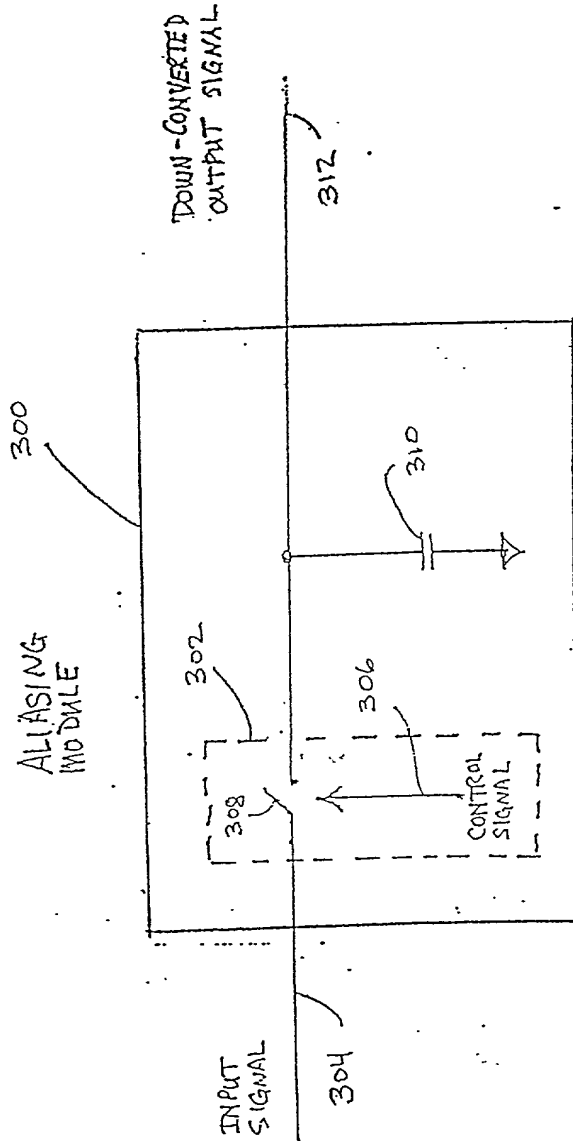
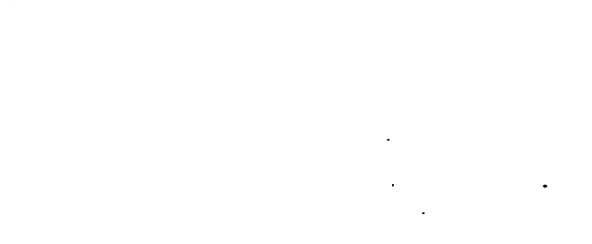
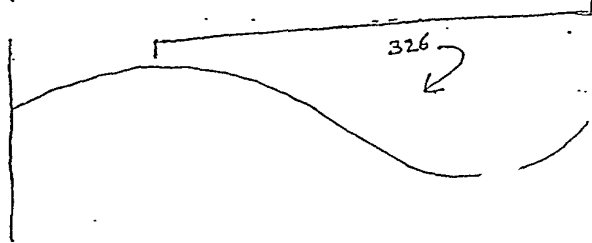
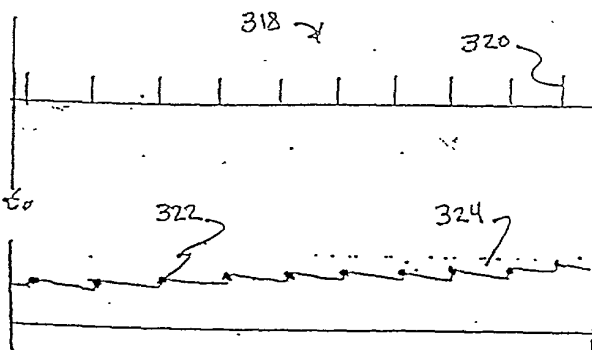
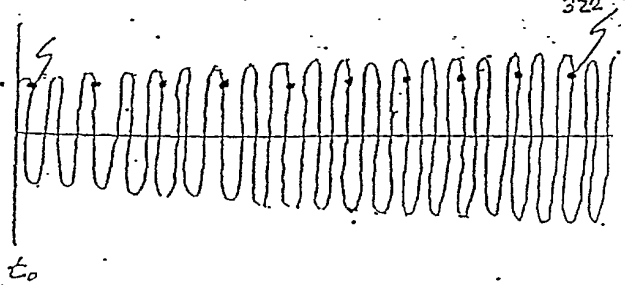
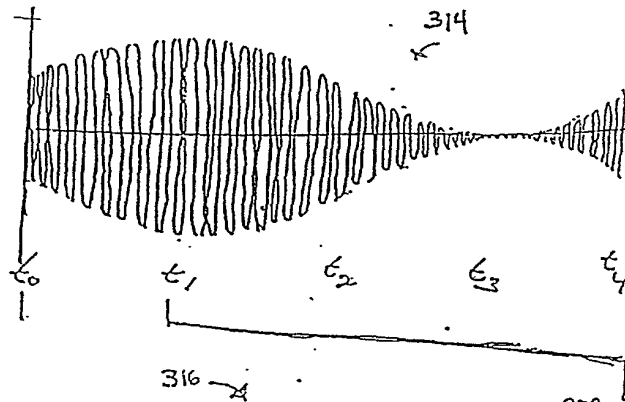


FIG. 3A

00055851.051601



1

3

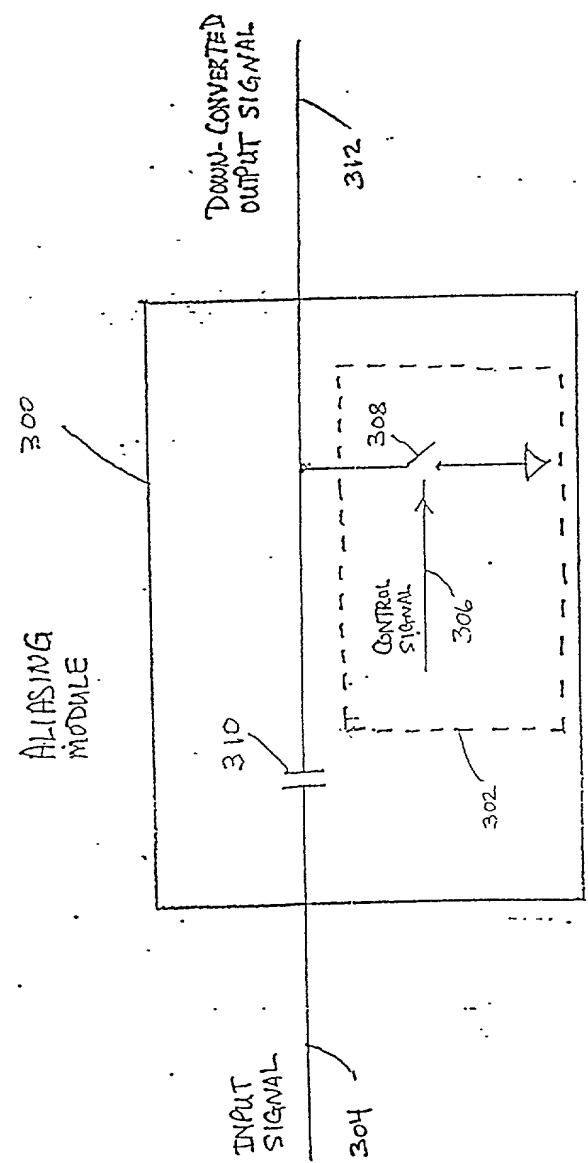


FIG. 3G

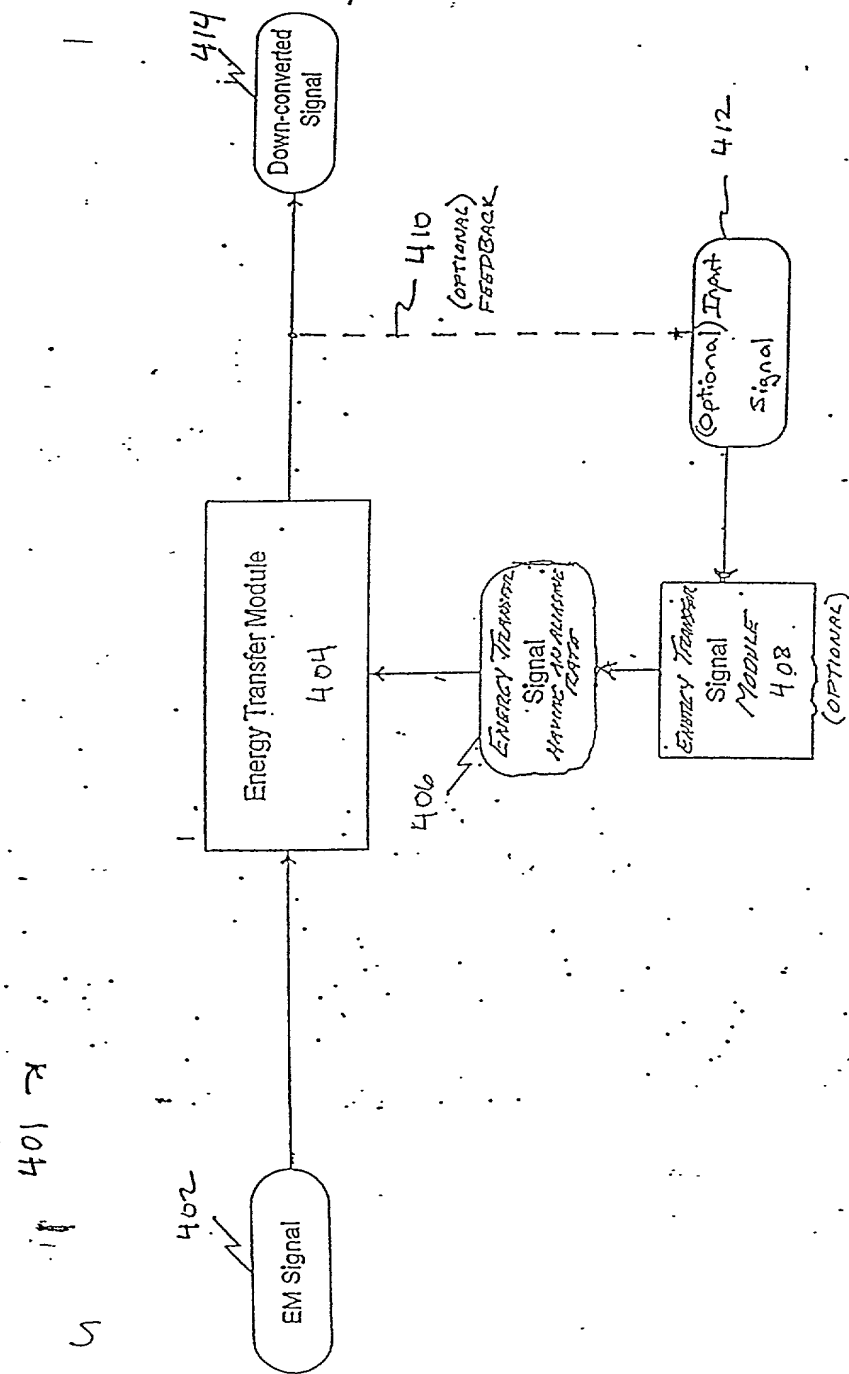


FIG. 4

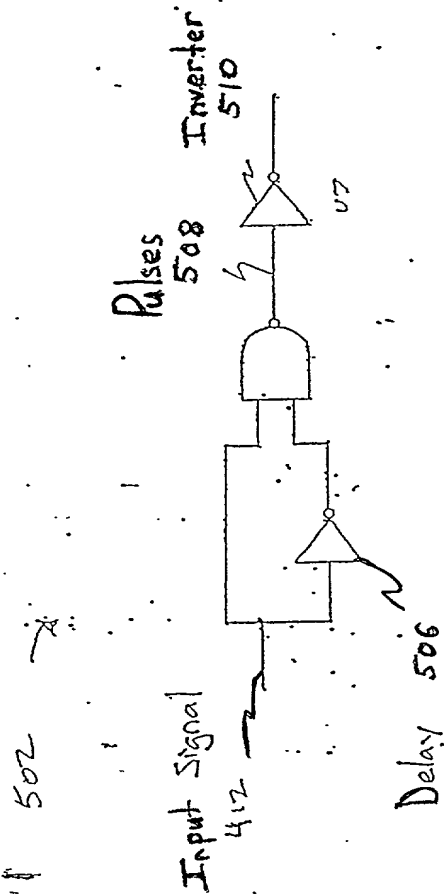


FIG. 5

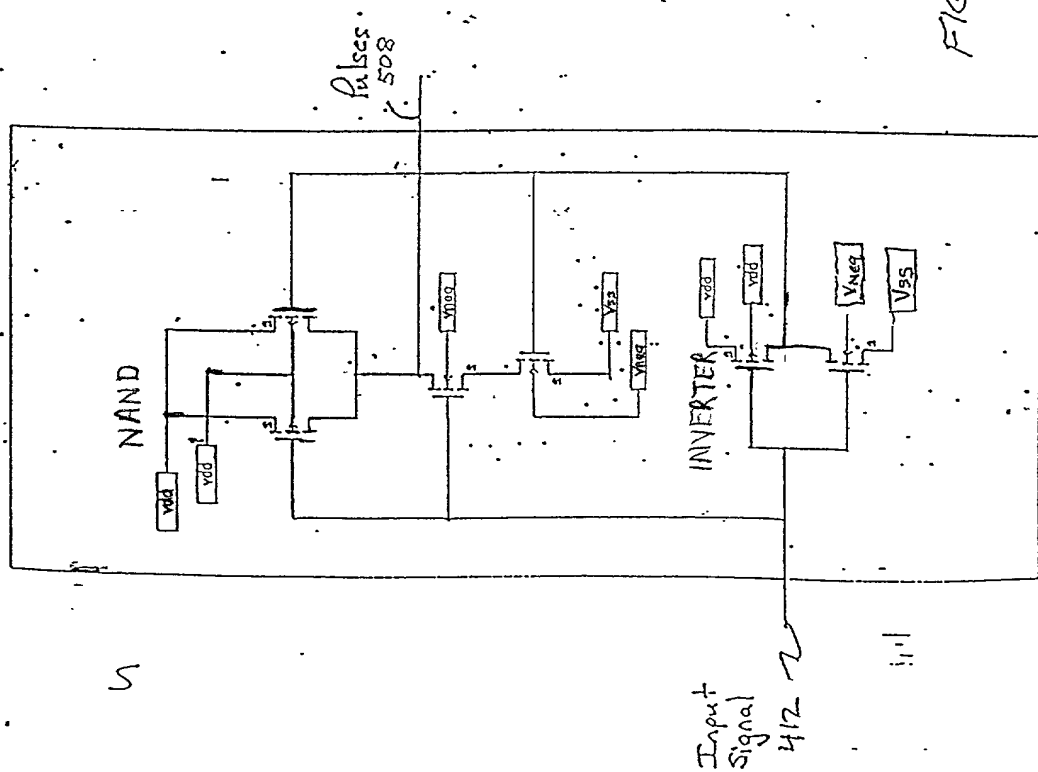


FIG. 6A

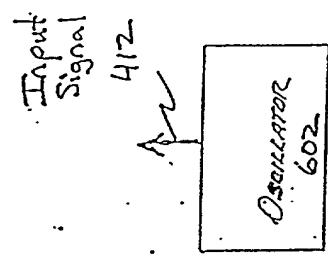


FIG. 6B

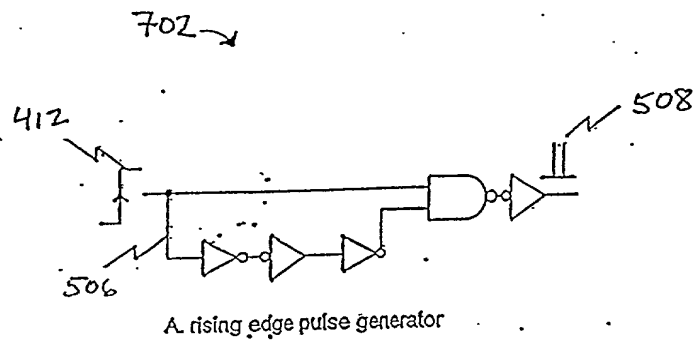


FIG. 7A.

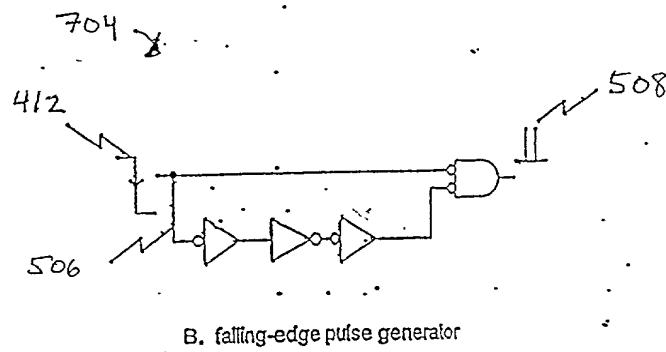


FIG. 7B

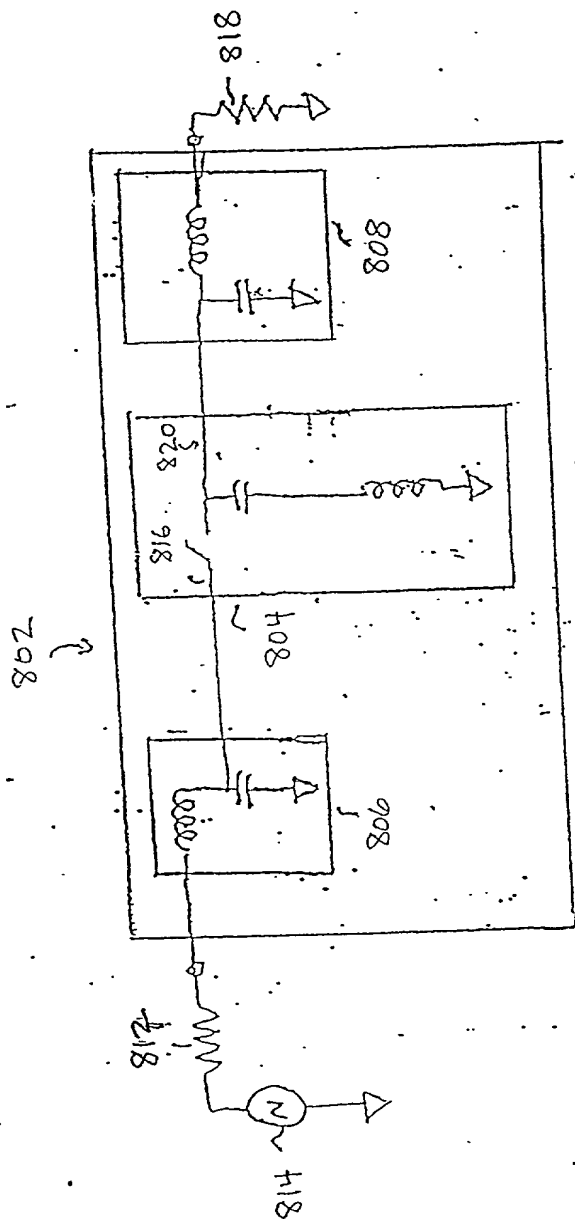


Fig. 8 . Impedance Matched Aliasing Module

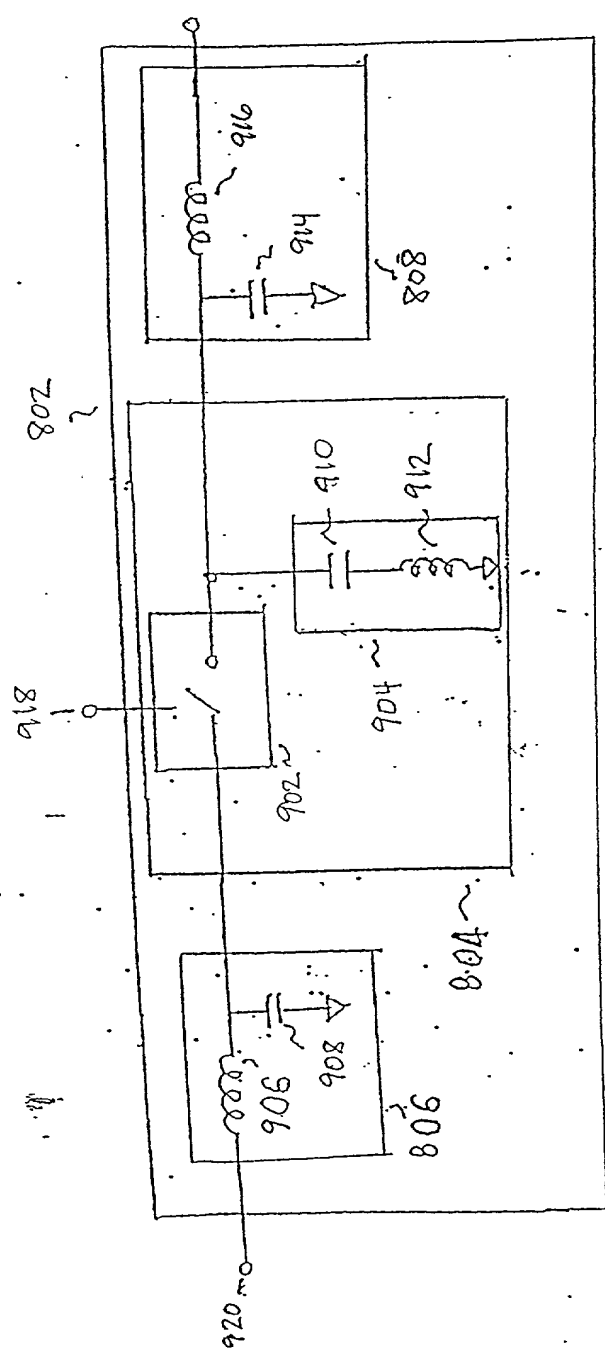


Fig 9 - Aliasing Module

Universal Frequency
Up-Conversion (UFU) module 1000

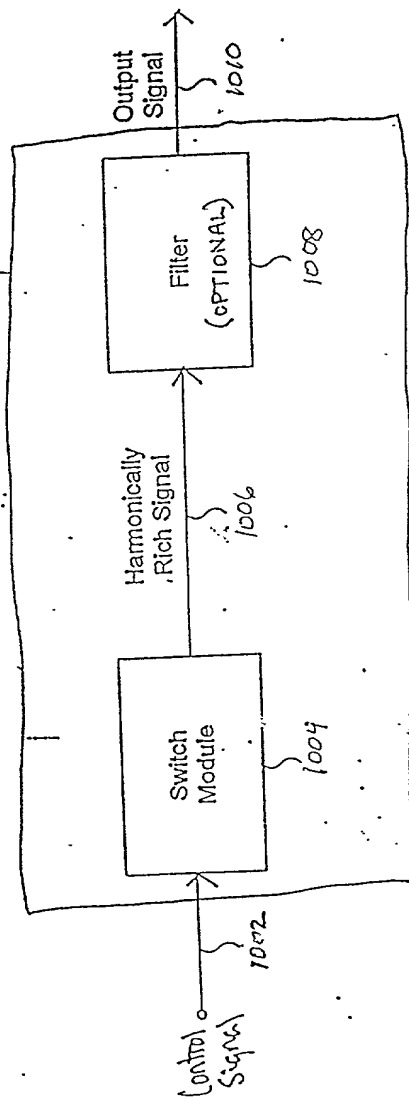


FIG. 10

3

Universal Frequency
Up-conversion (UFU) module 1101

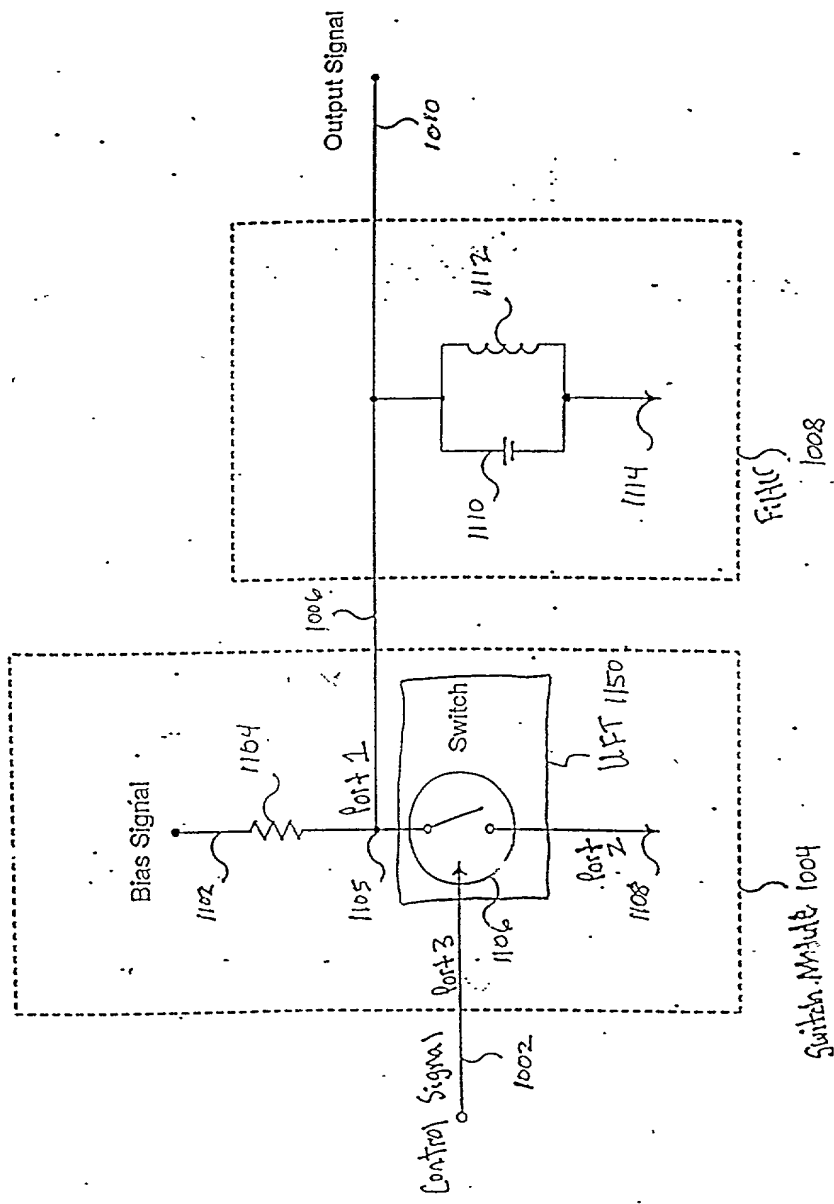


FIG. 11

Universal Frequency
VQ-Conversion
(UFV) module 1290

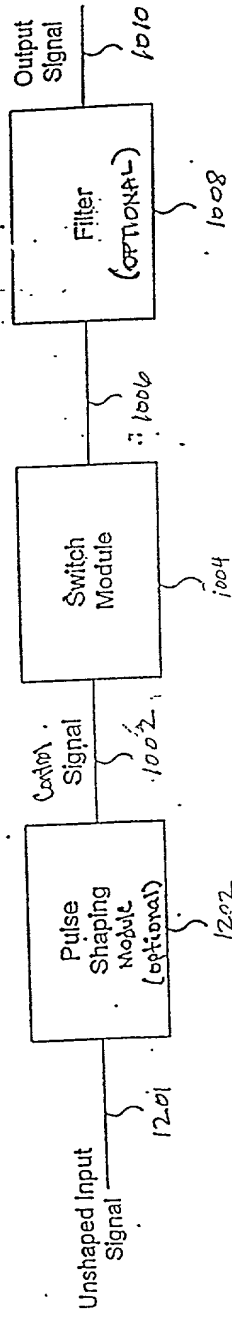
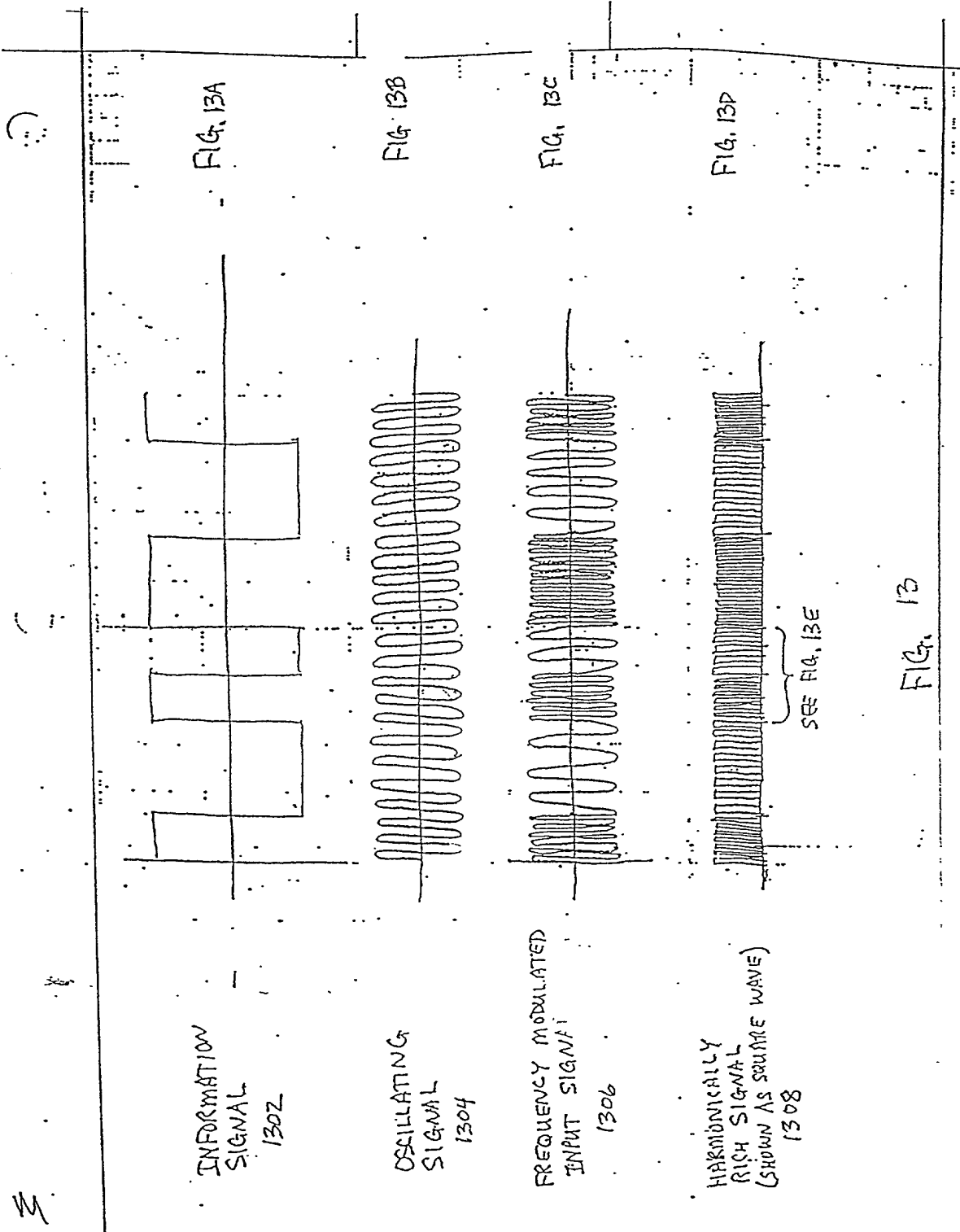
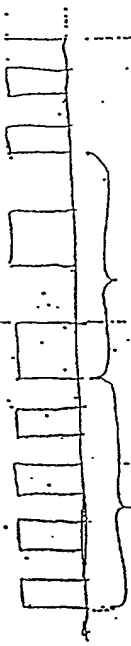


FIG. 12



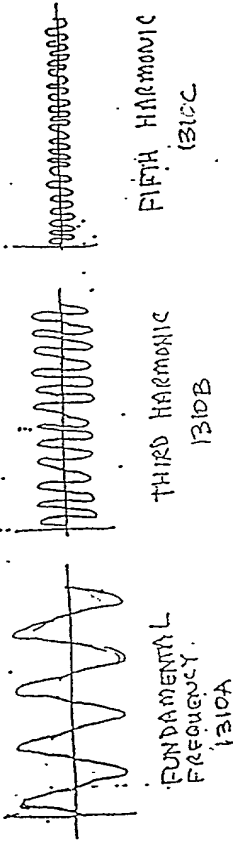
W

EXPANDED VIEW OF
HARMONICALLY RICH
SIGNAL 1308



1310
SEE FIG. 13F
1312

HARMONICS OF
SIGNAL 1310
(SHOWN SEPARATELY)



HARMONICS OF
SIGNAL 1312
(SHOWN SEPARATELY)

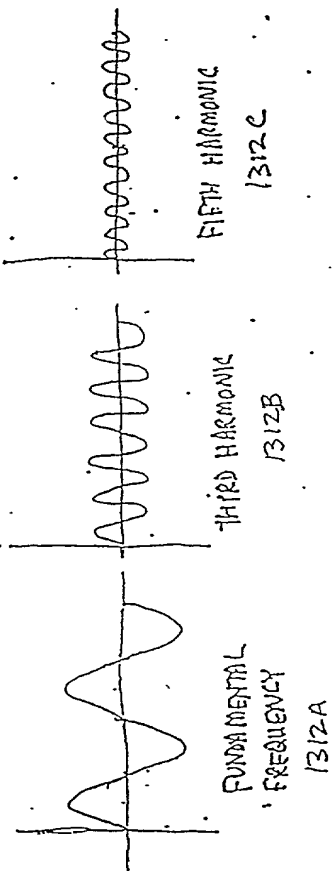


FIG. 13 (cont.)

HARMONICS OF
SIGNALS 1310 AND
1312, (SHOWN
SIMULTANEOUSLY BUT
NOT SUMMED)

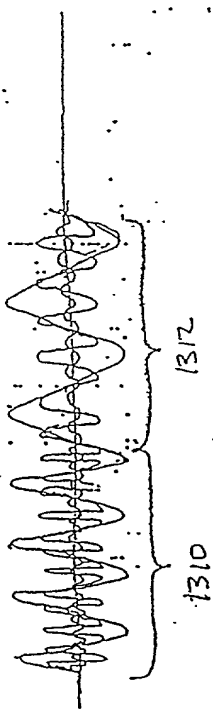


FIG. 13H

FILTERED
OUTPUT
SIGNAL
1314

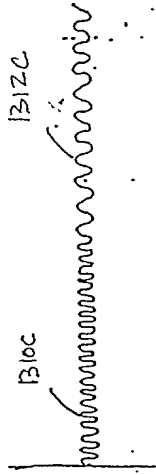


FIG. 13I

FIG. 13 (cont.)

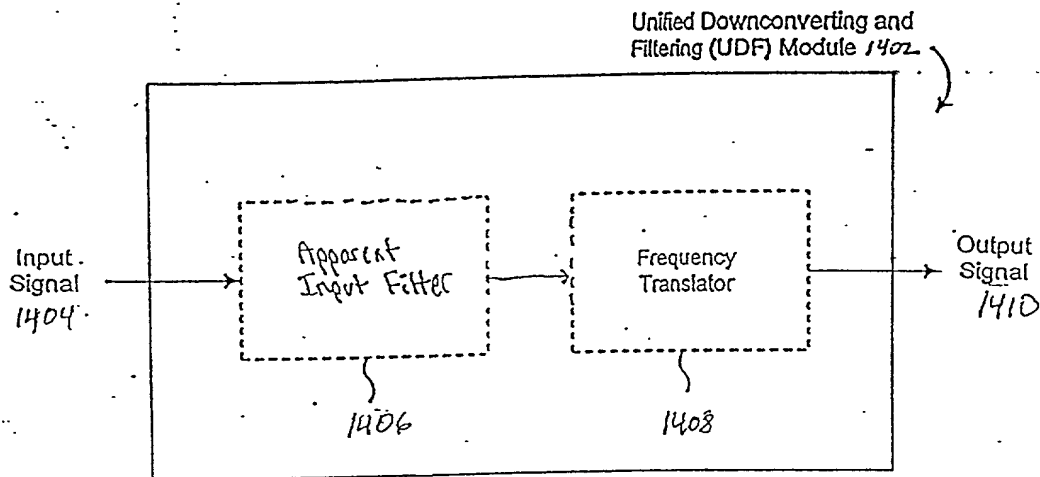


FIG. 14

m

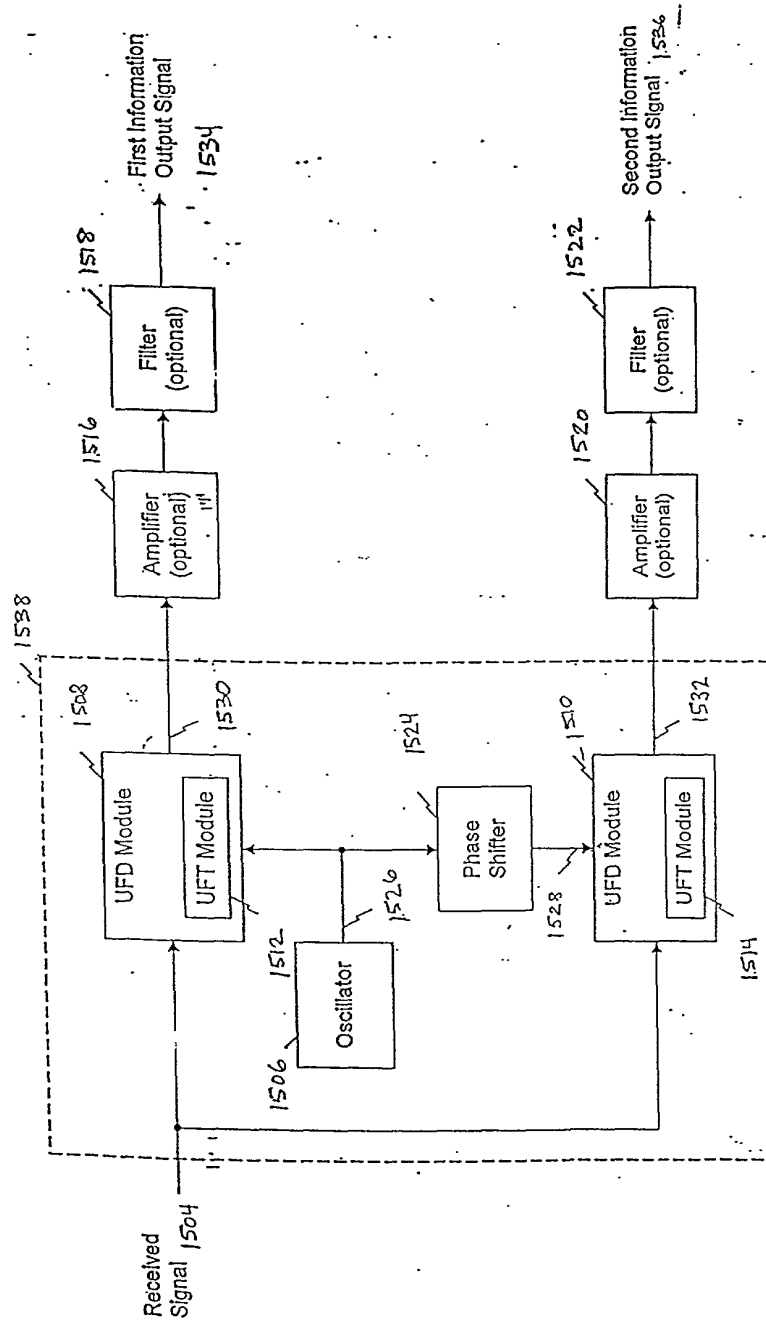


FIG. 15

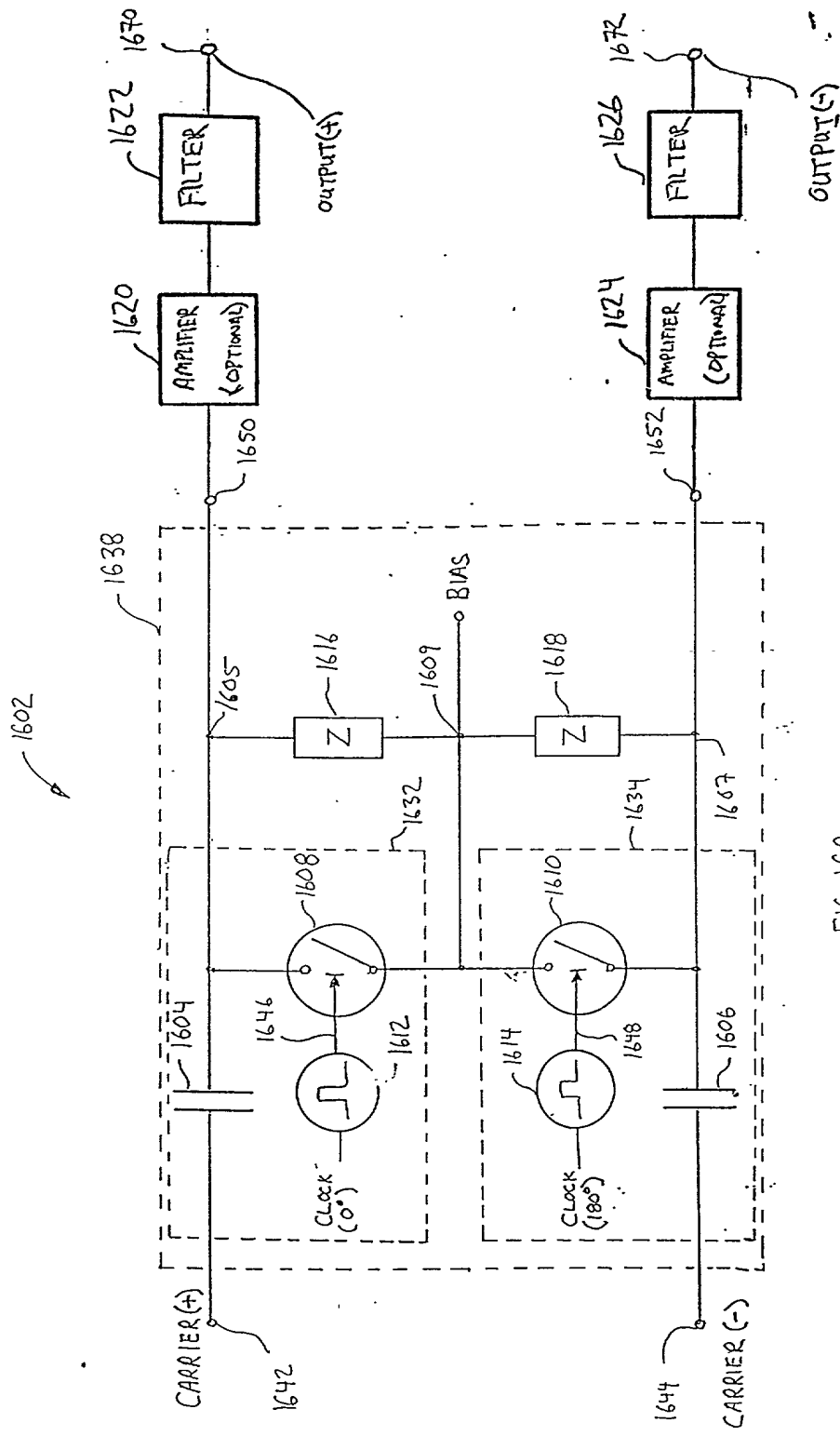


FIG. 16A

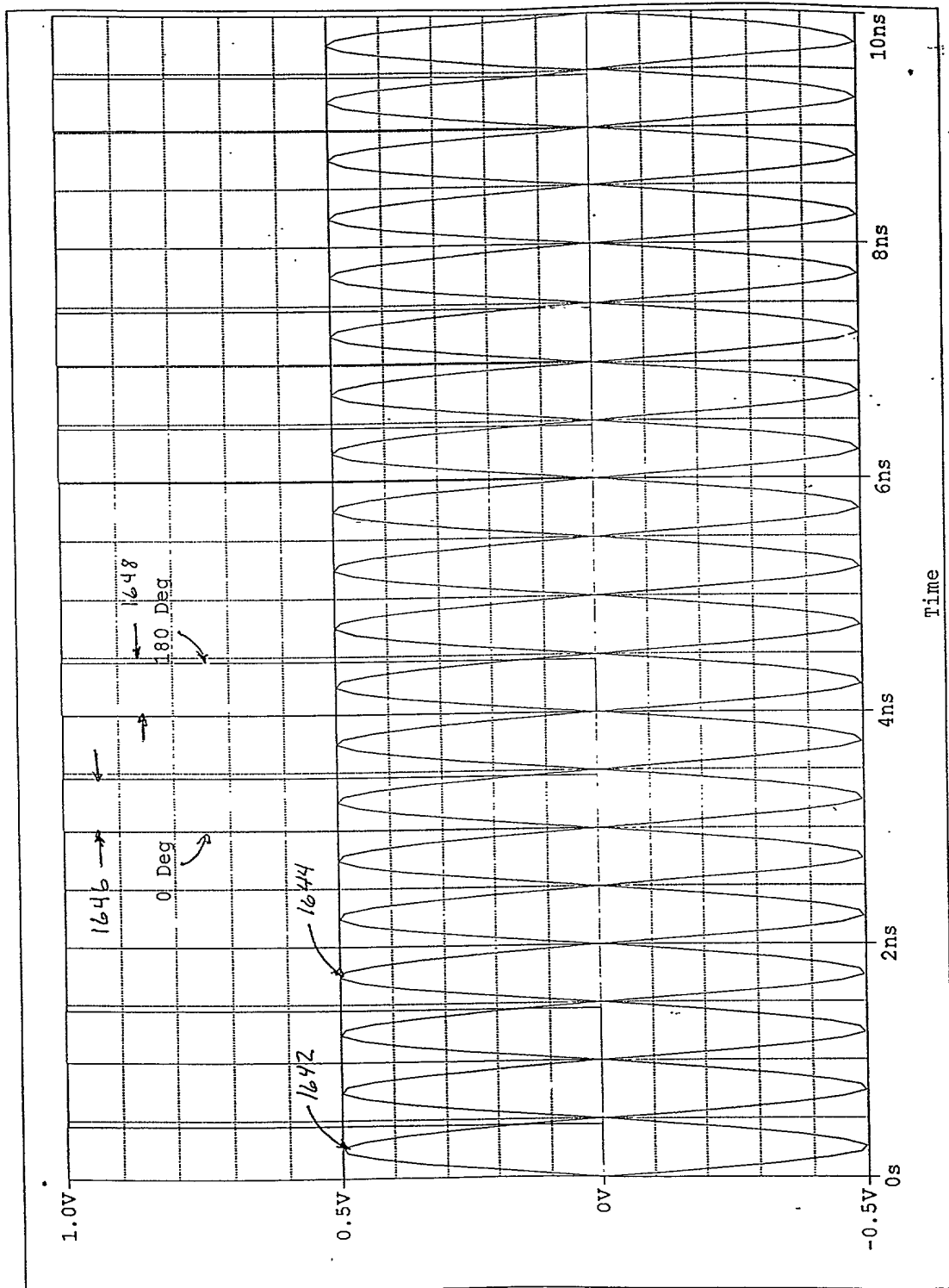


FIG. 16 B

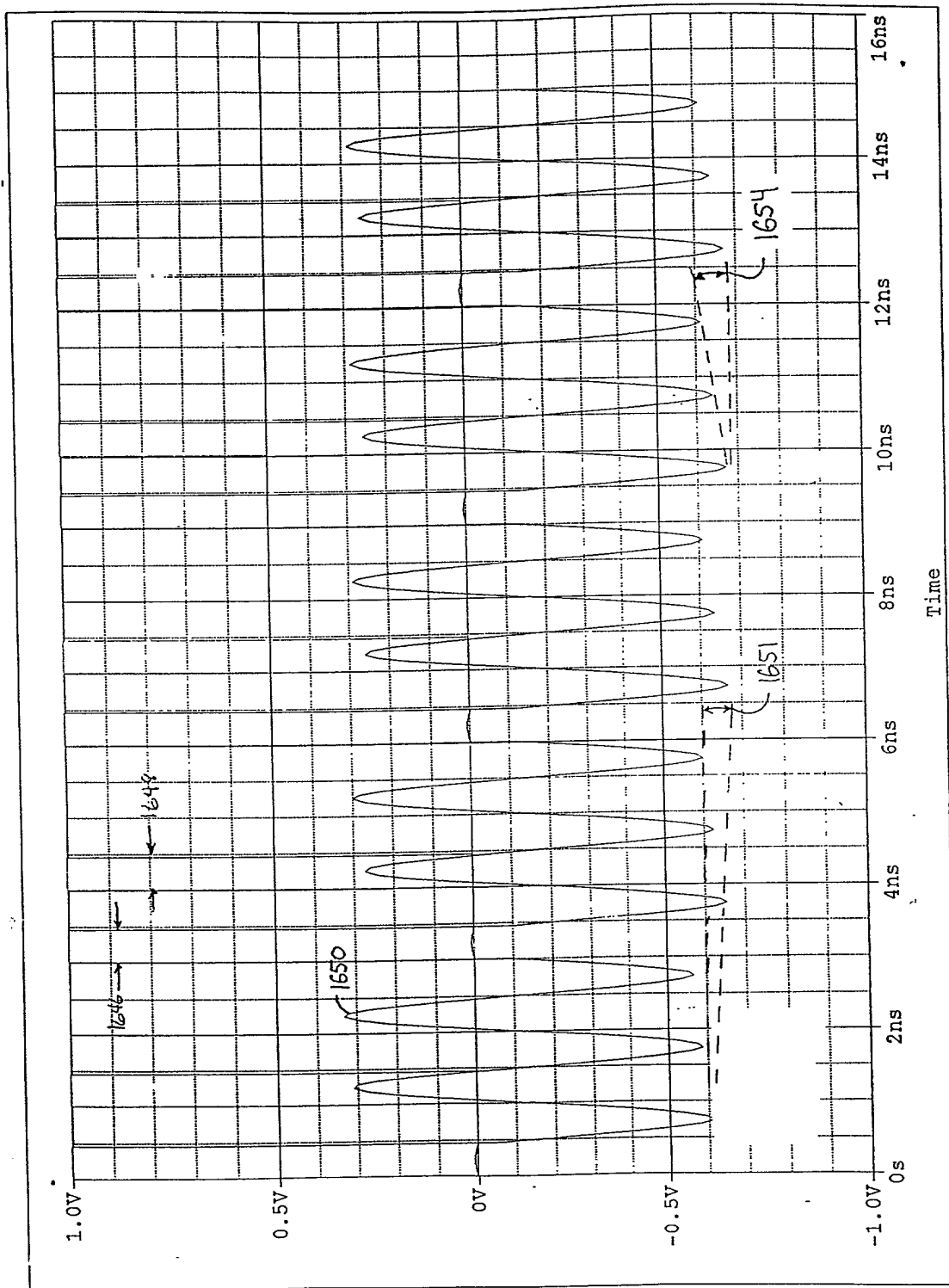


FIG. 16C

TOP50" 15253850

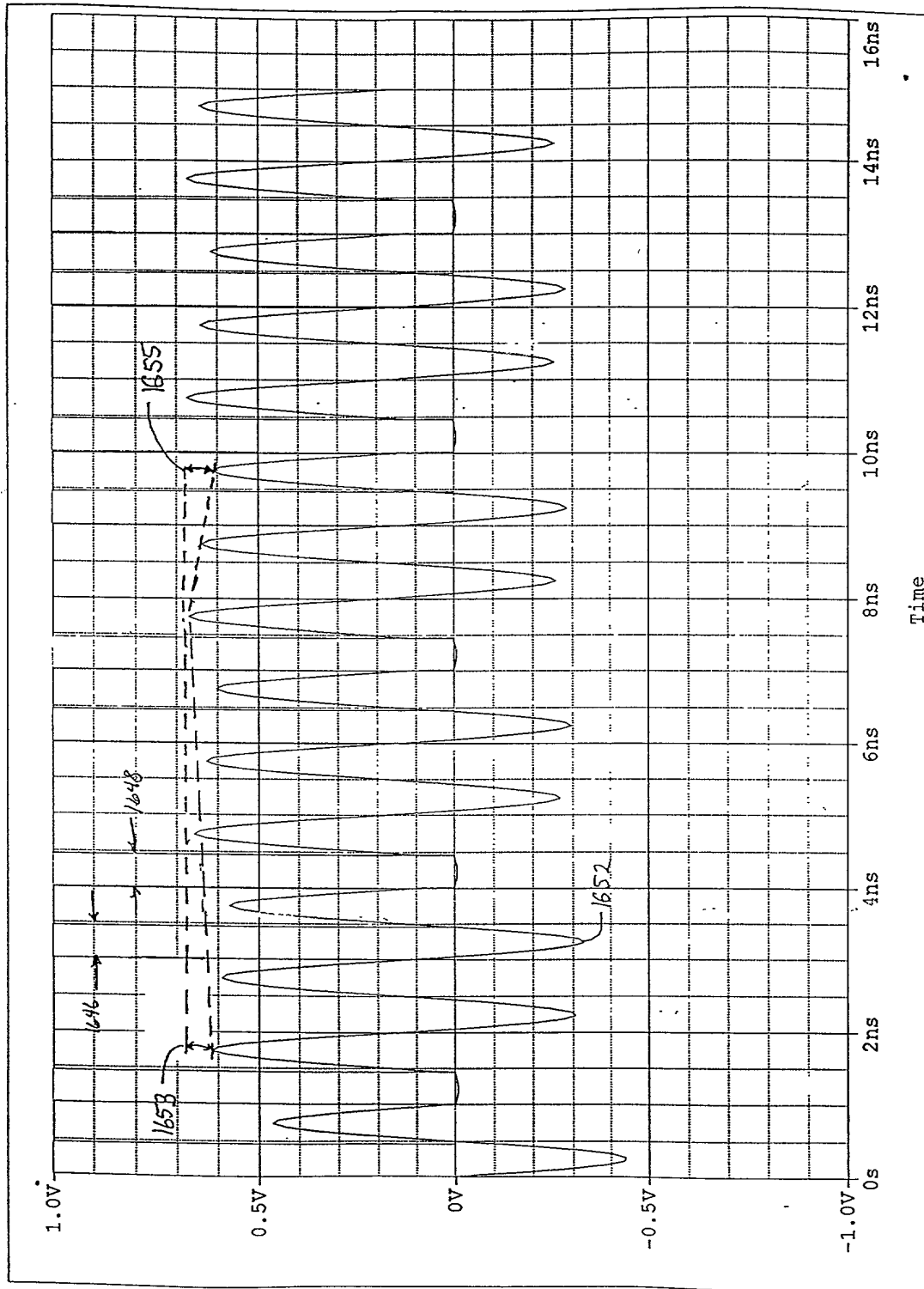


FIG. 16D

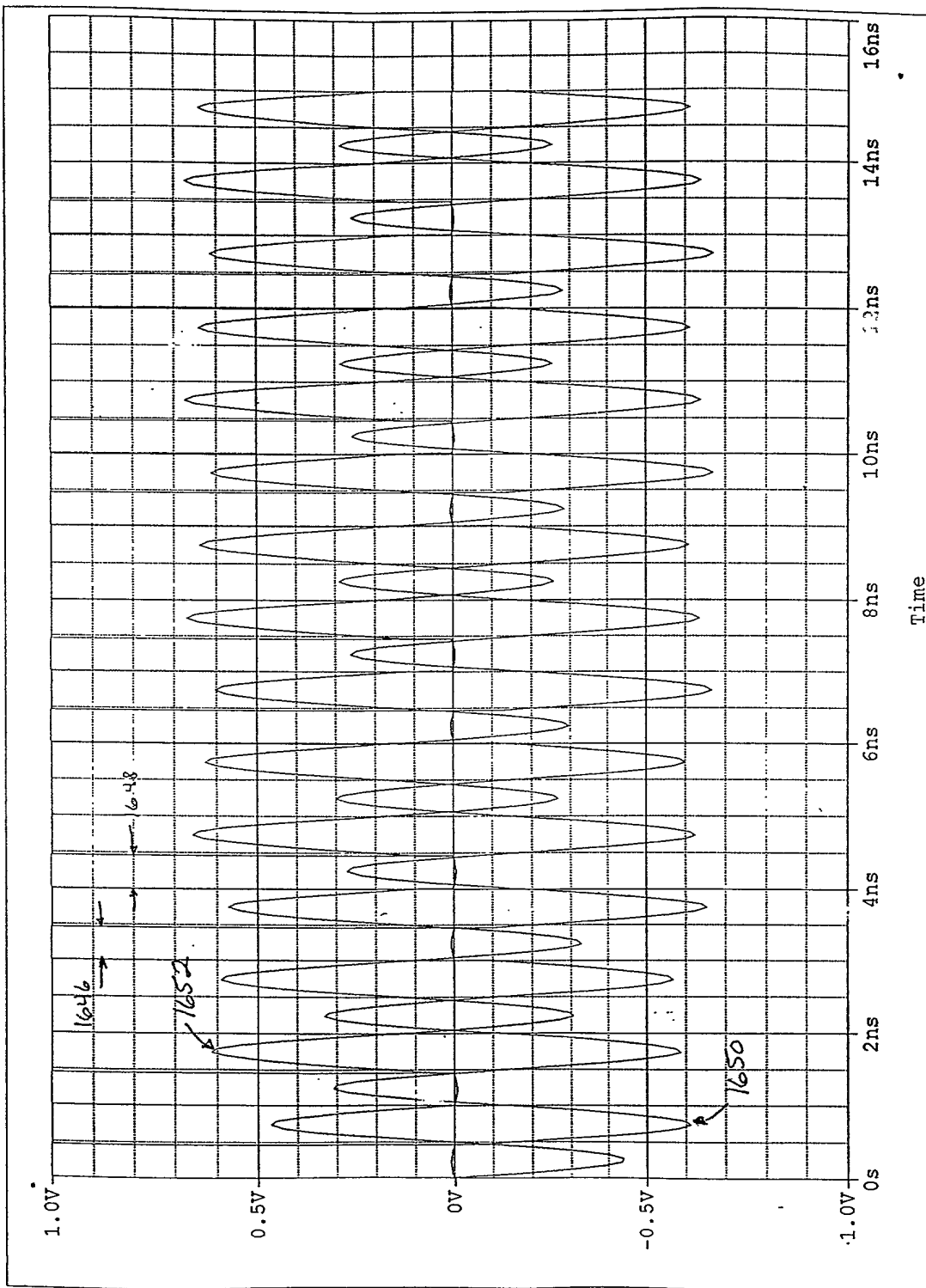


FIG. 16 E

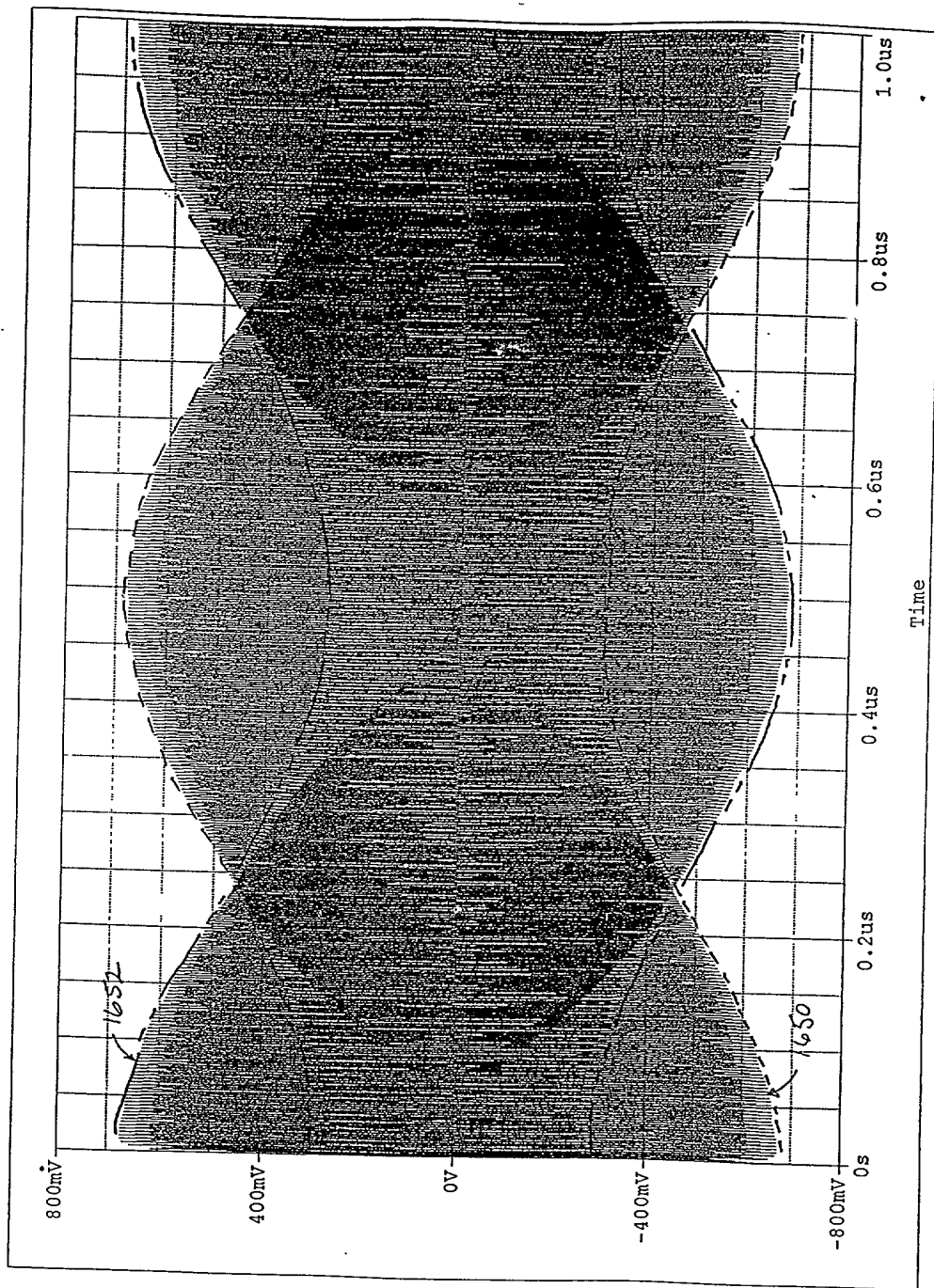


FIG. 16 F

0985851 05460
T09T50" T585860

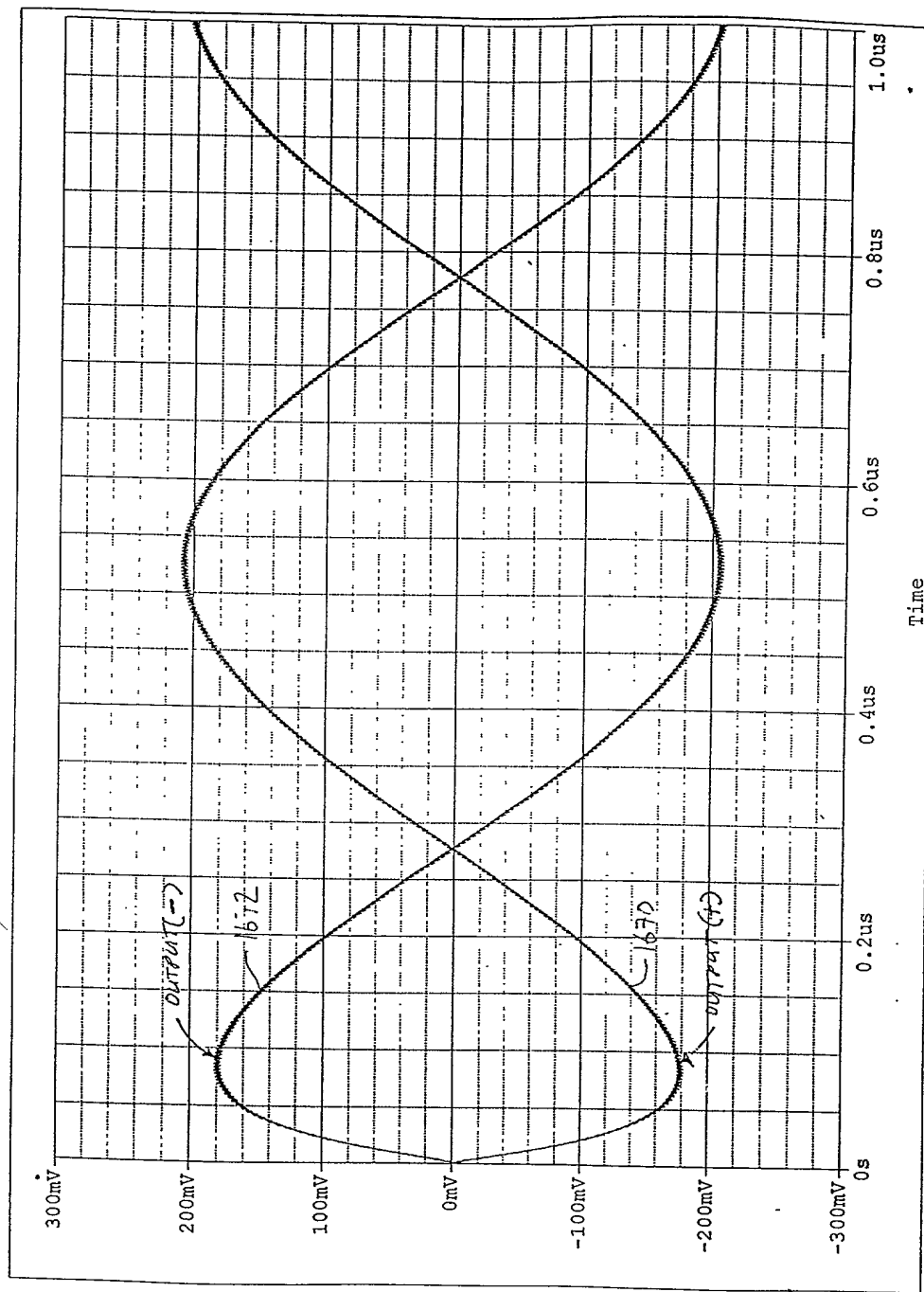


FIG. 16 G

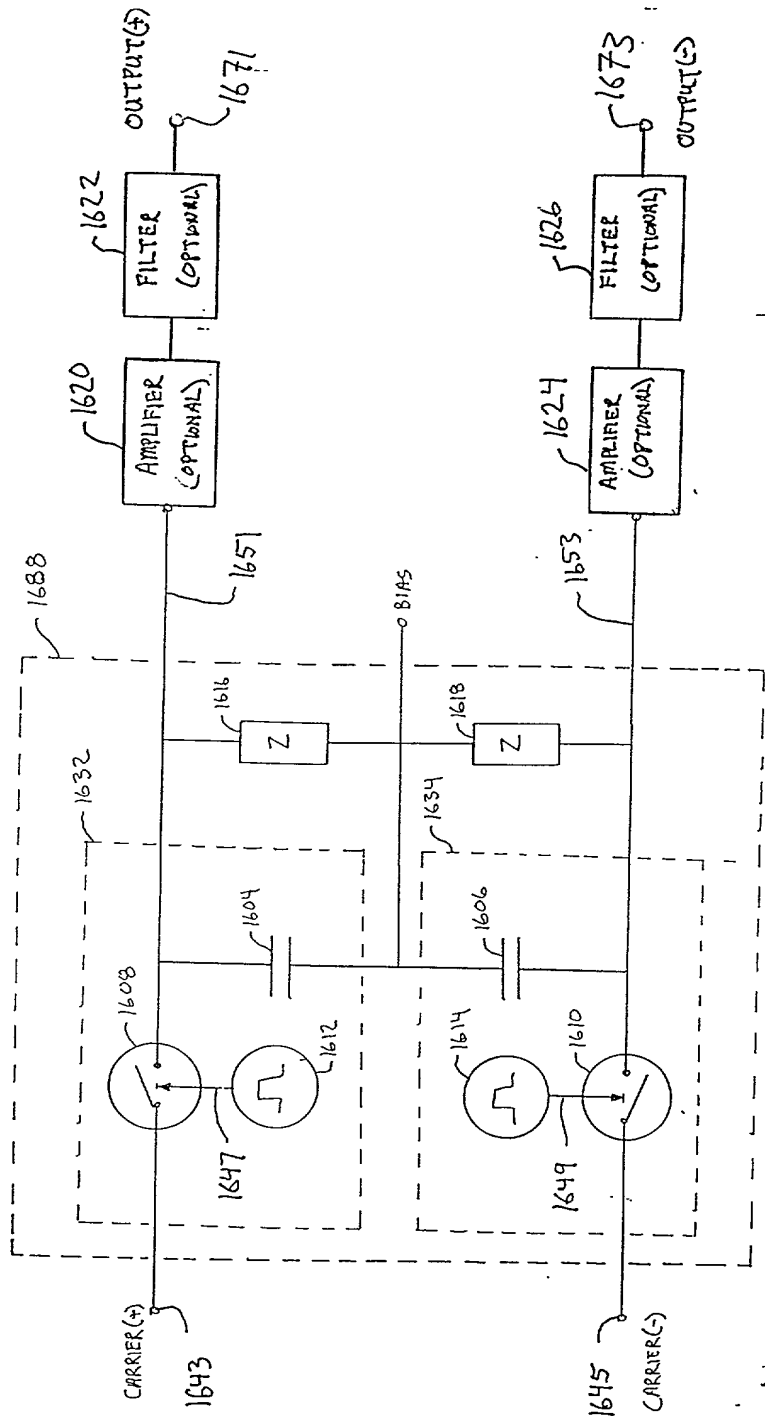


FIG. 16H

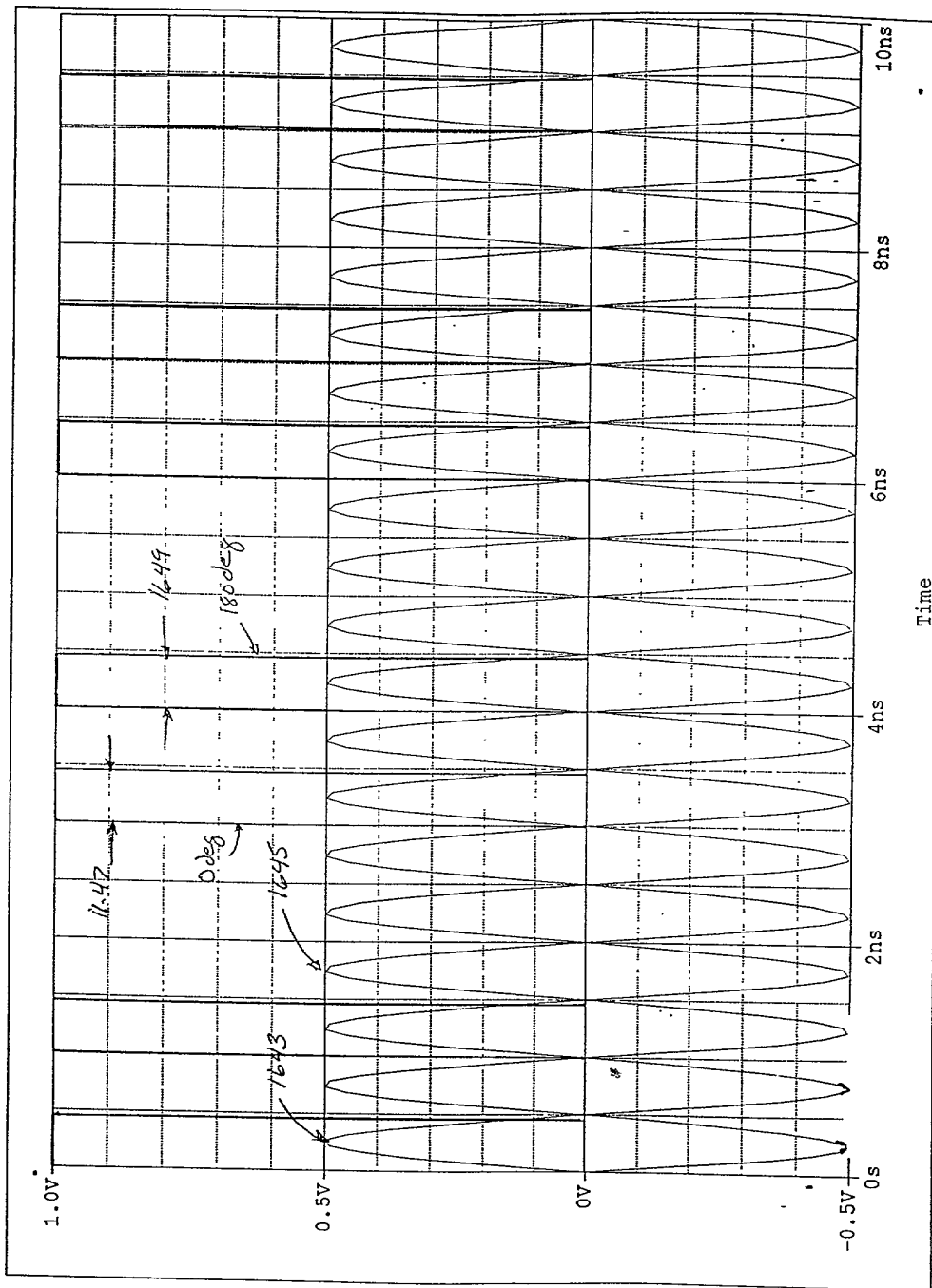


FIG. 16I

109150" 1585860

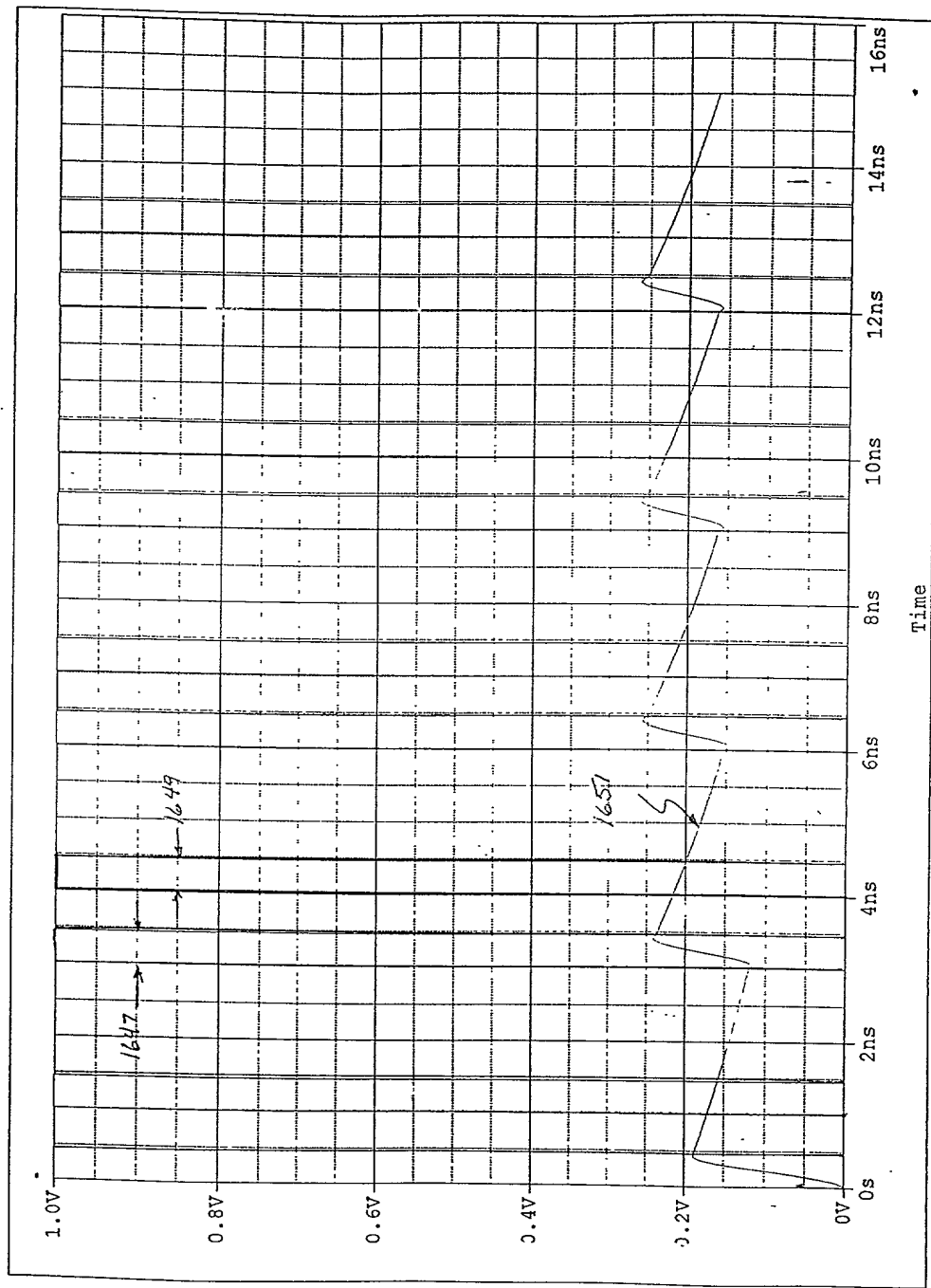


Fig. 16J

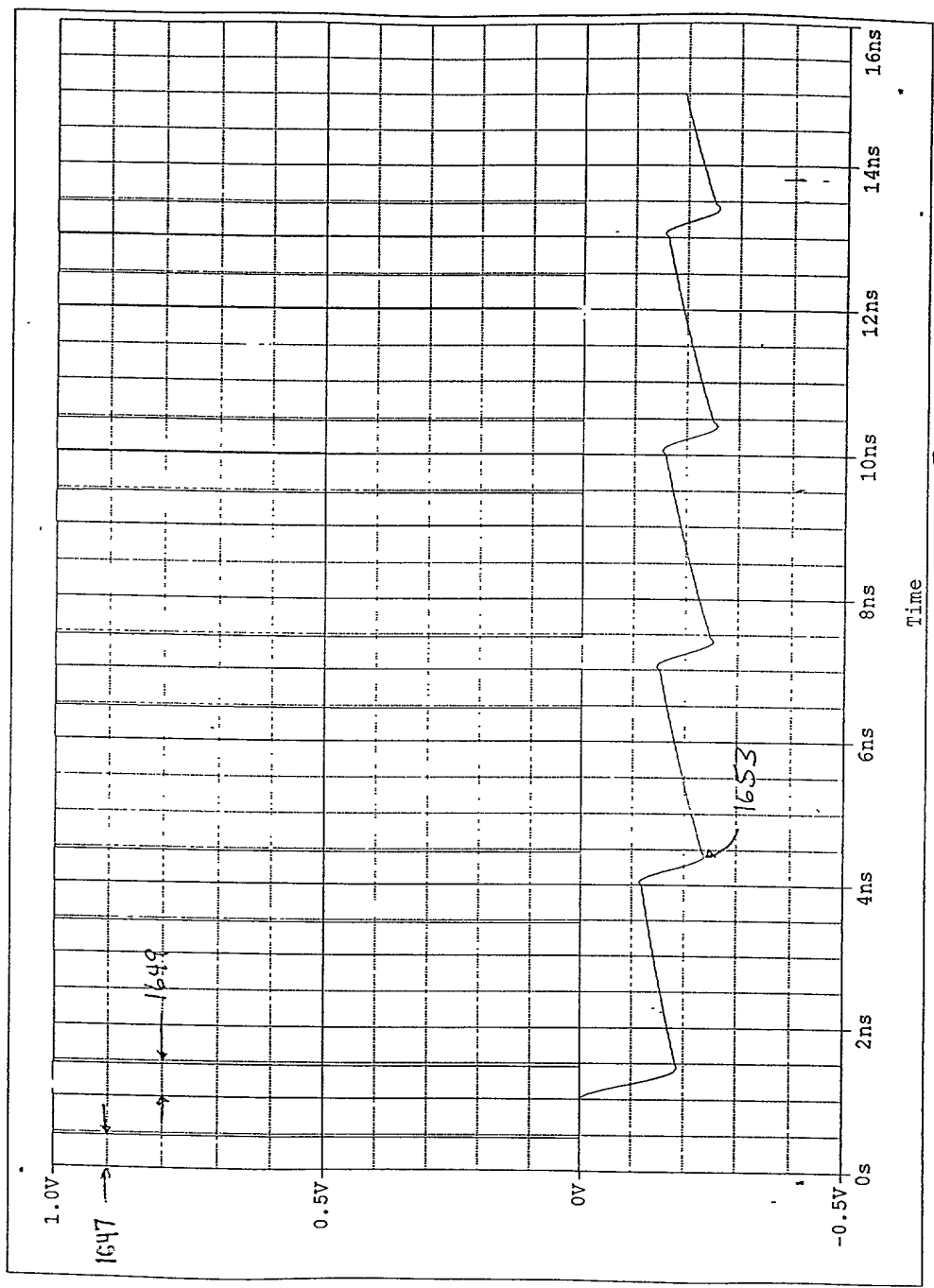


FIG. 16K

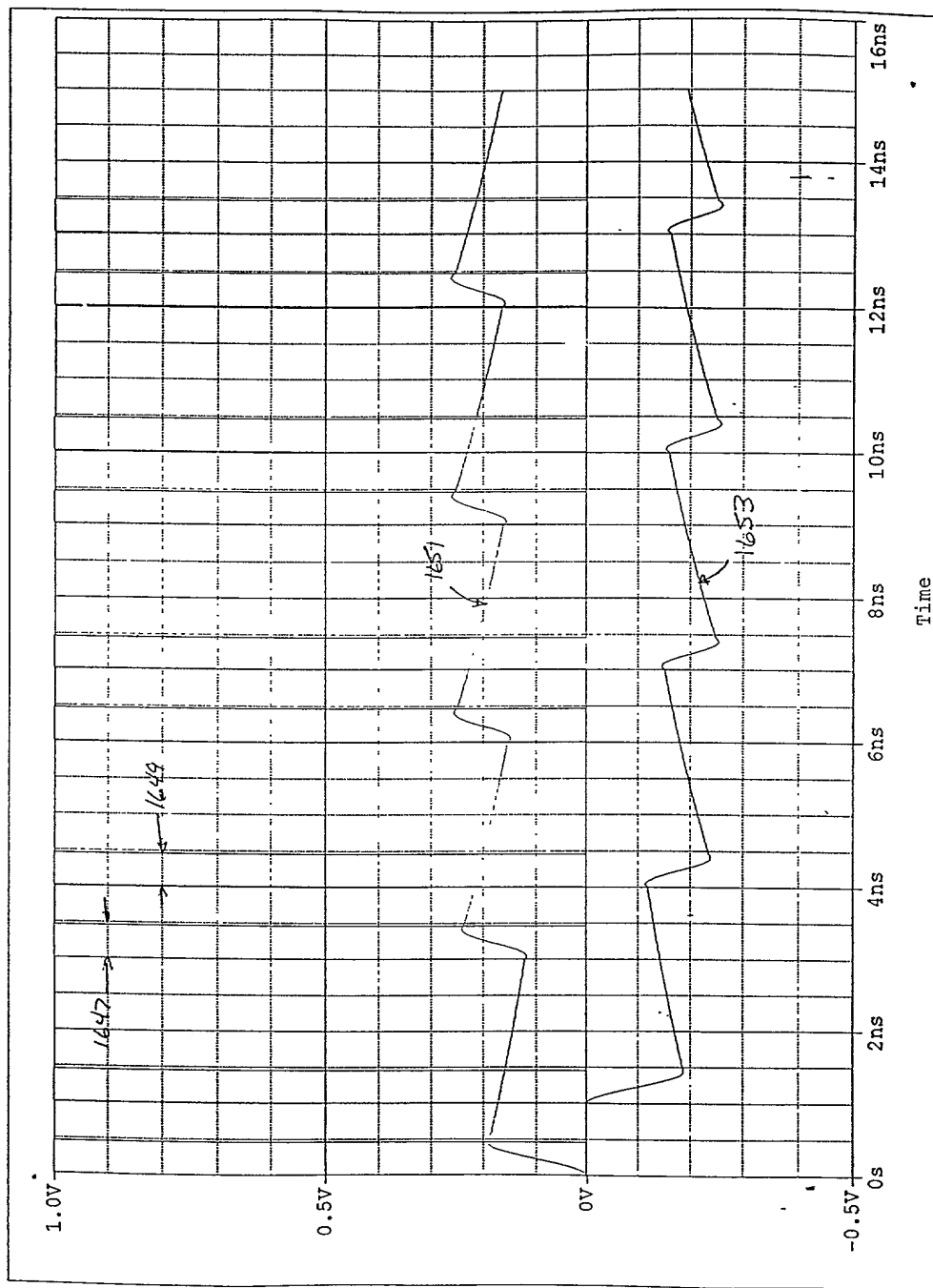


FIG. 16L

09855854 054604

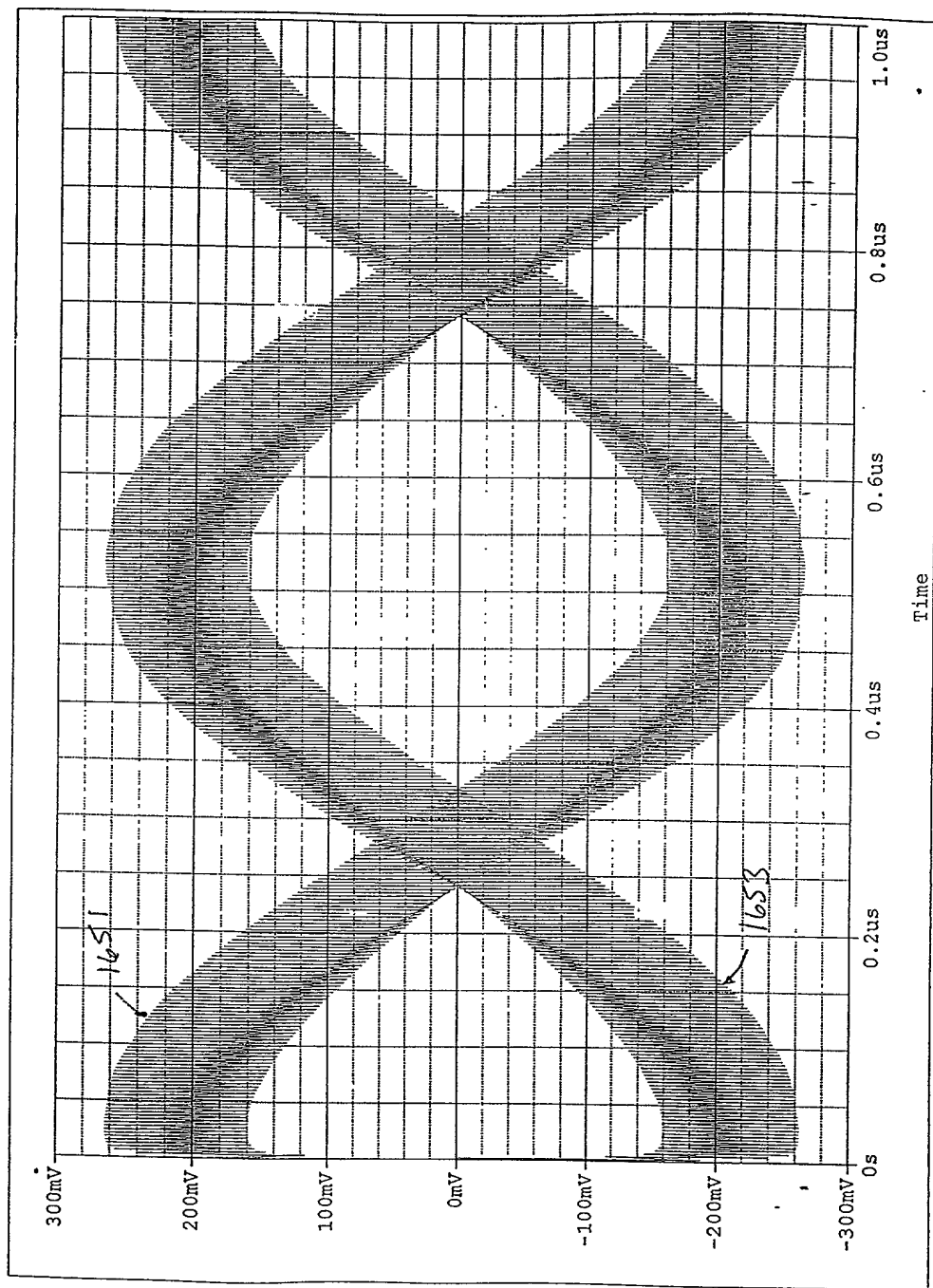


FIG. 16m

095584 05160

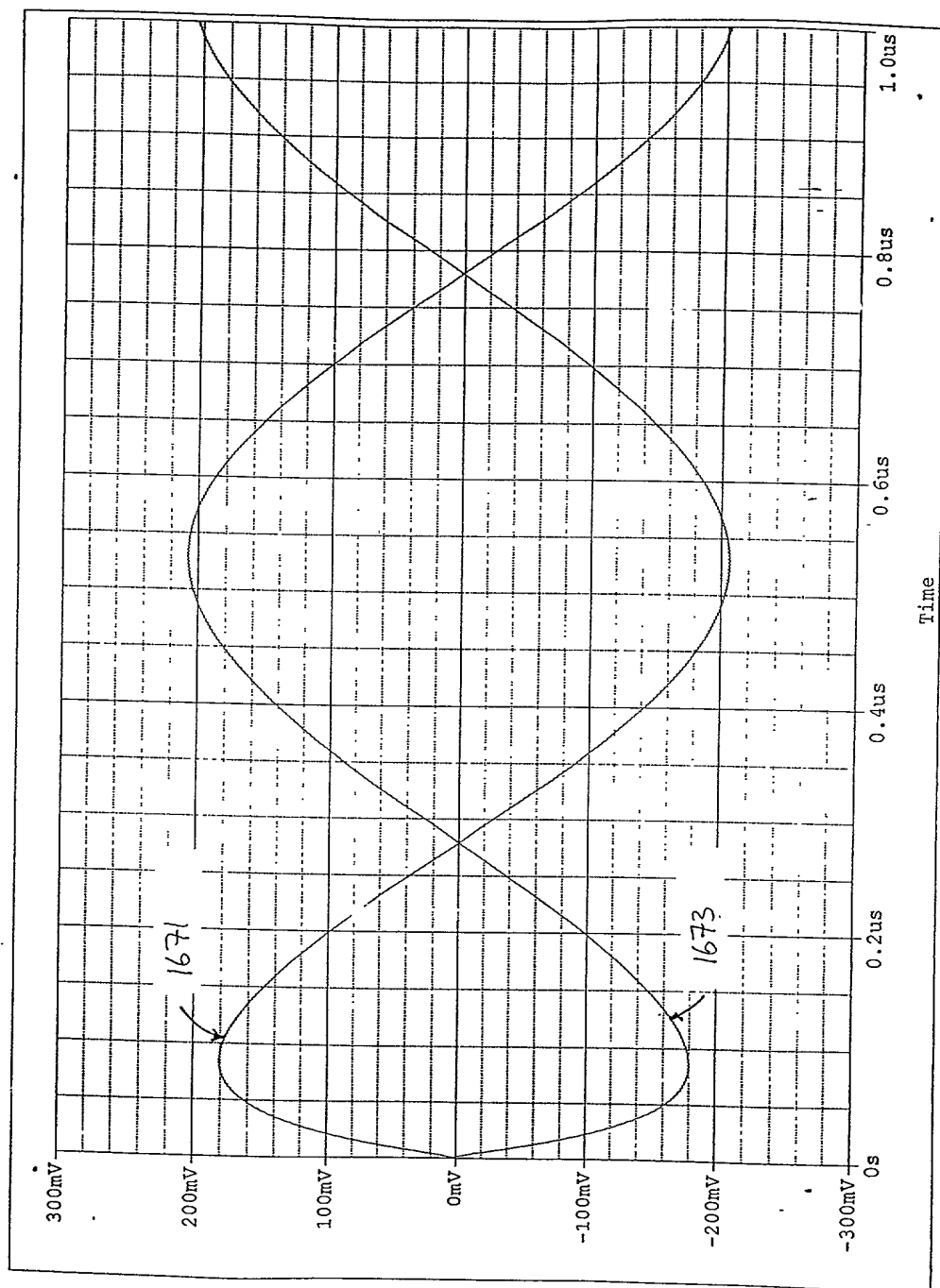


FIG. 16N

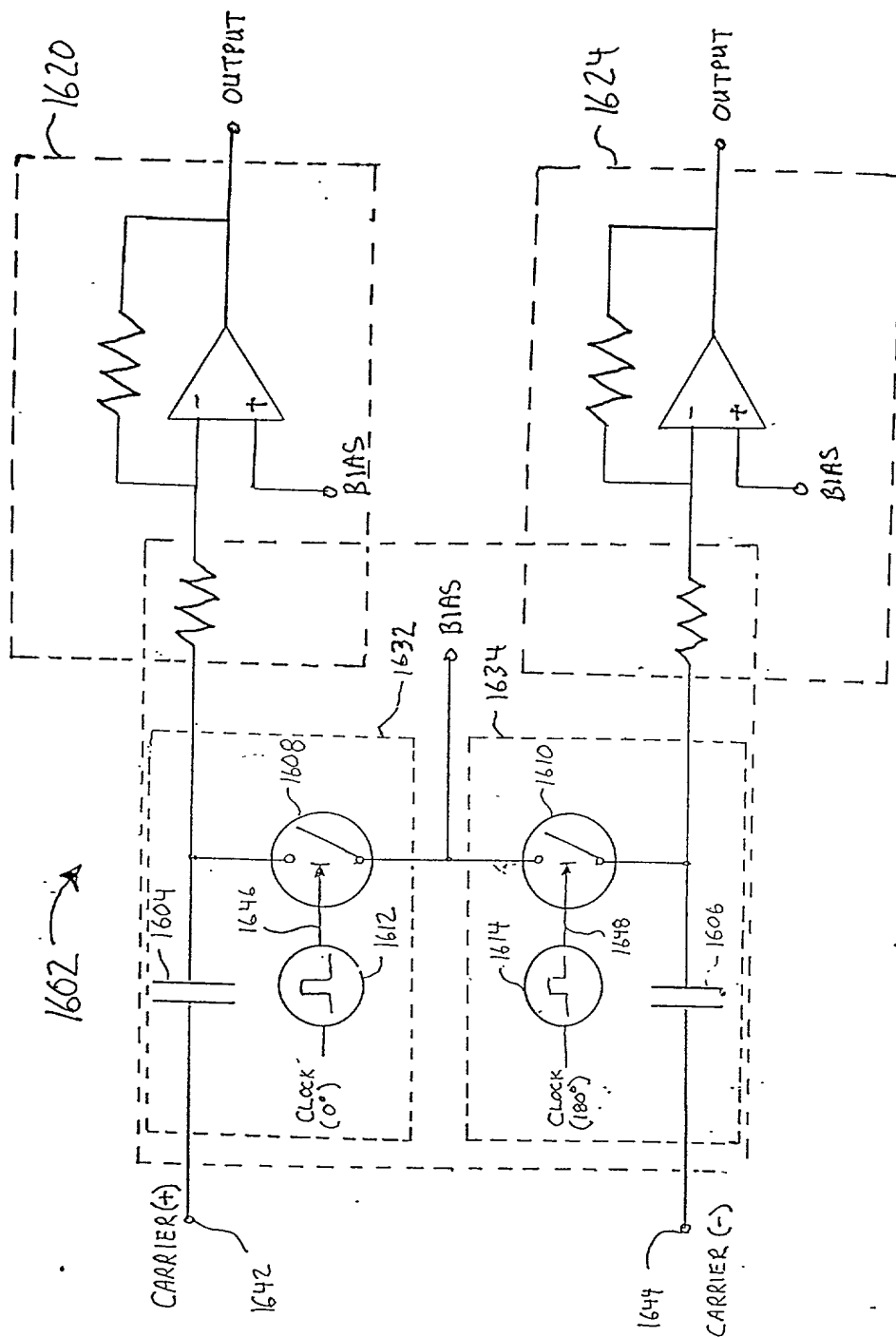


FIG. 160

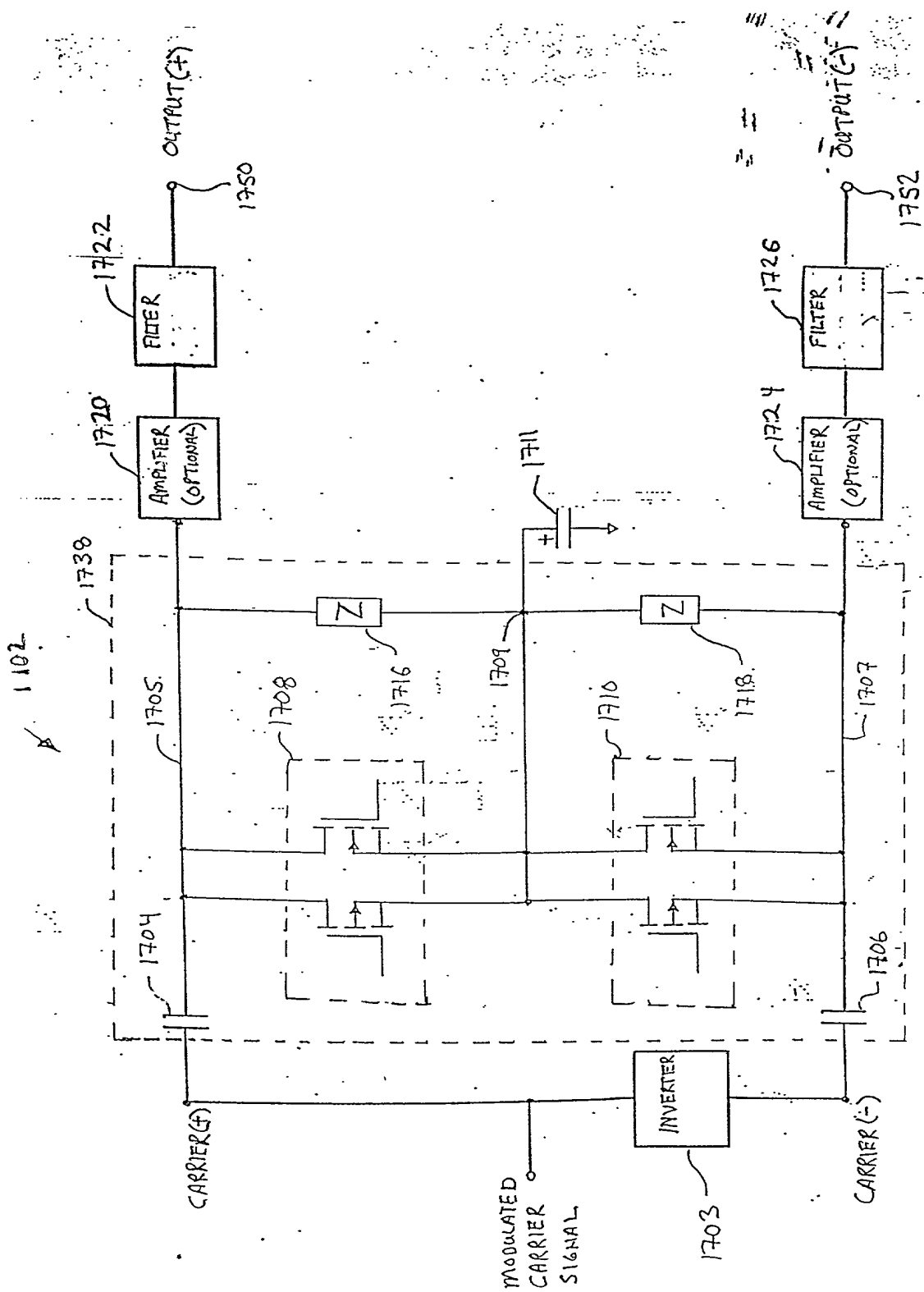
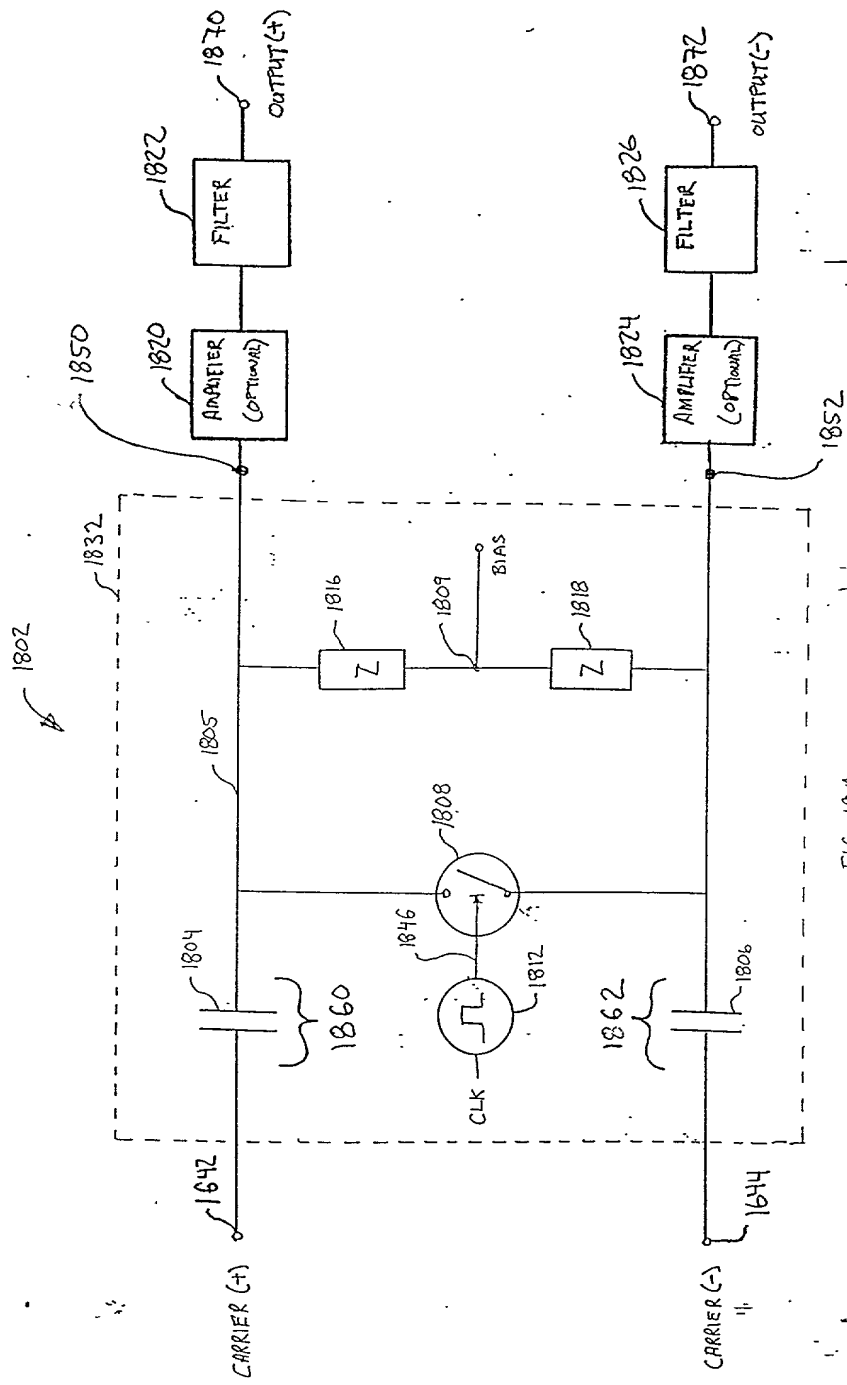


FIG. 17



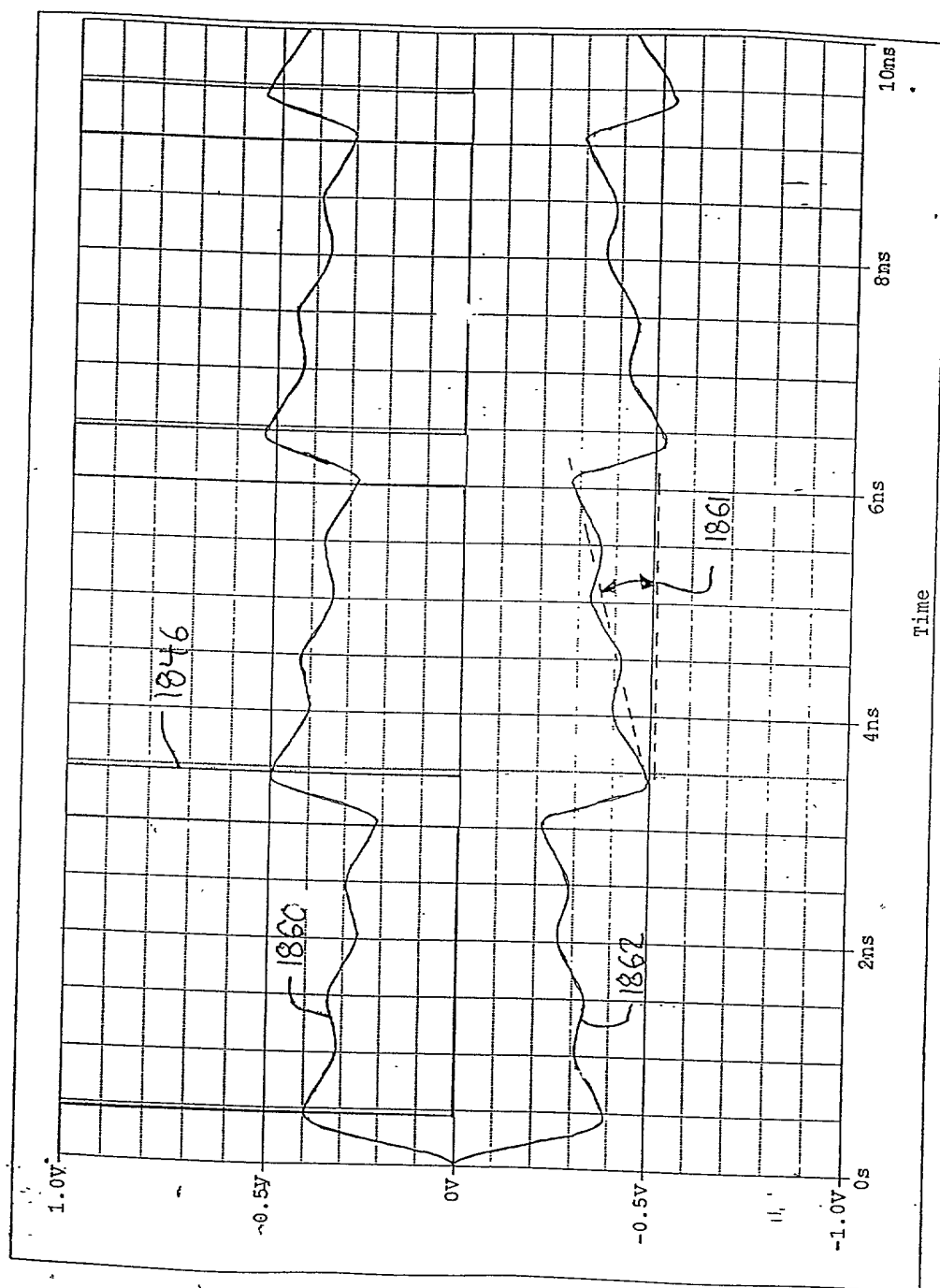


FIG. 18B

0985831 051604

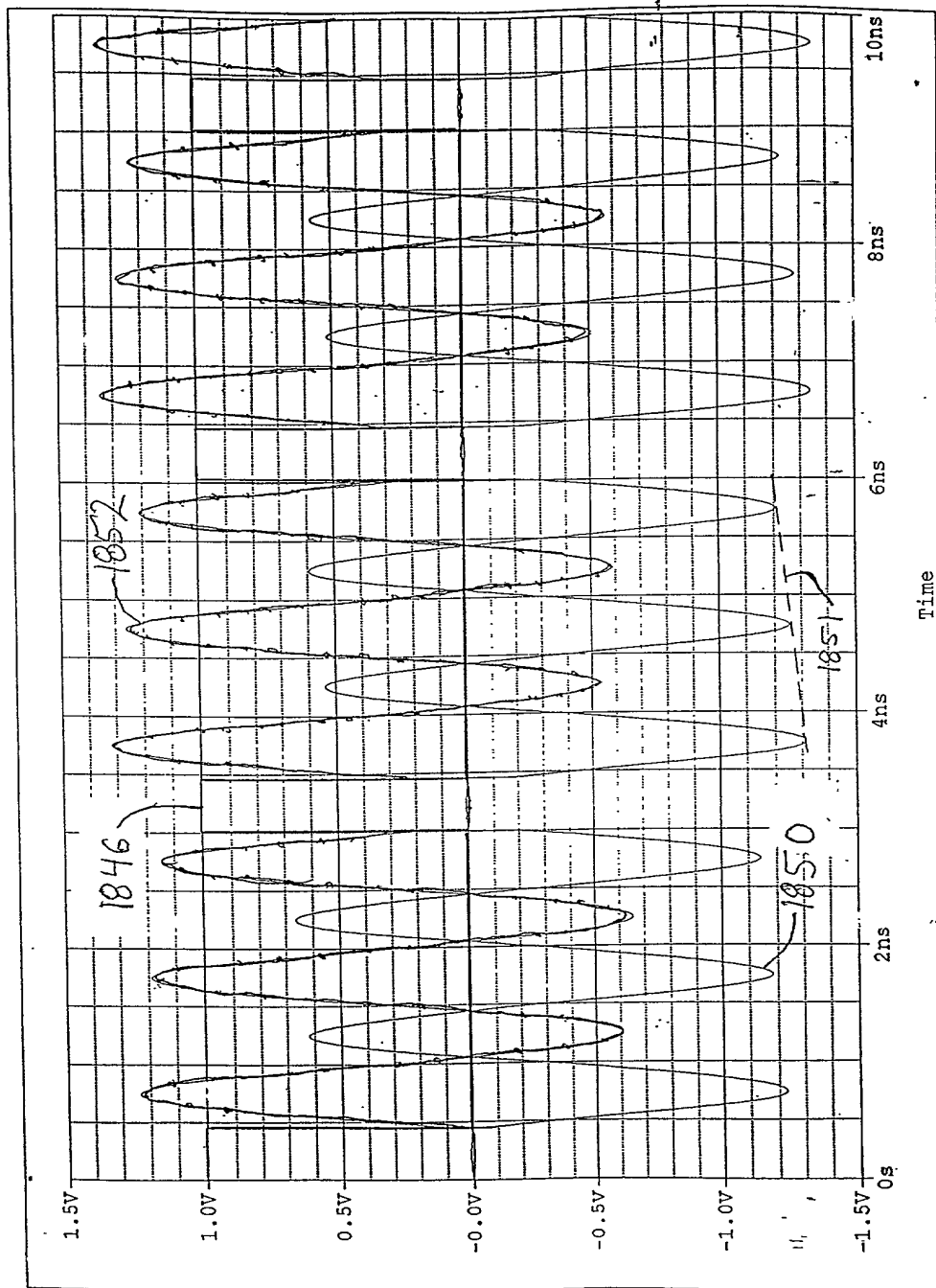


FIG. 18C

109150" 1525360

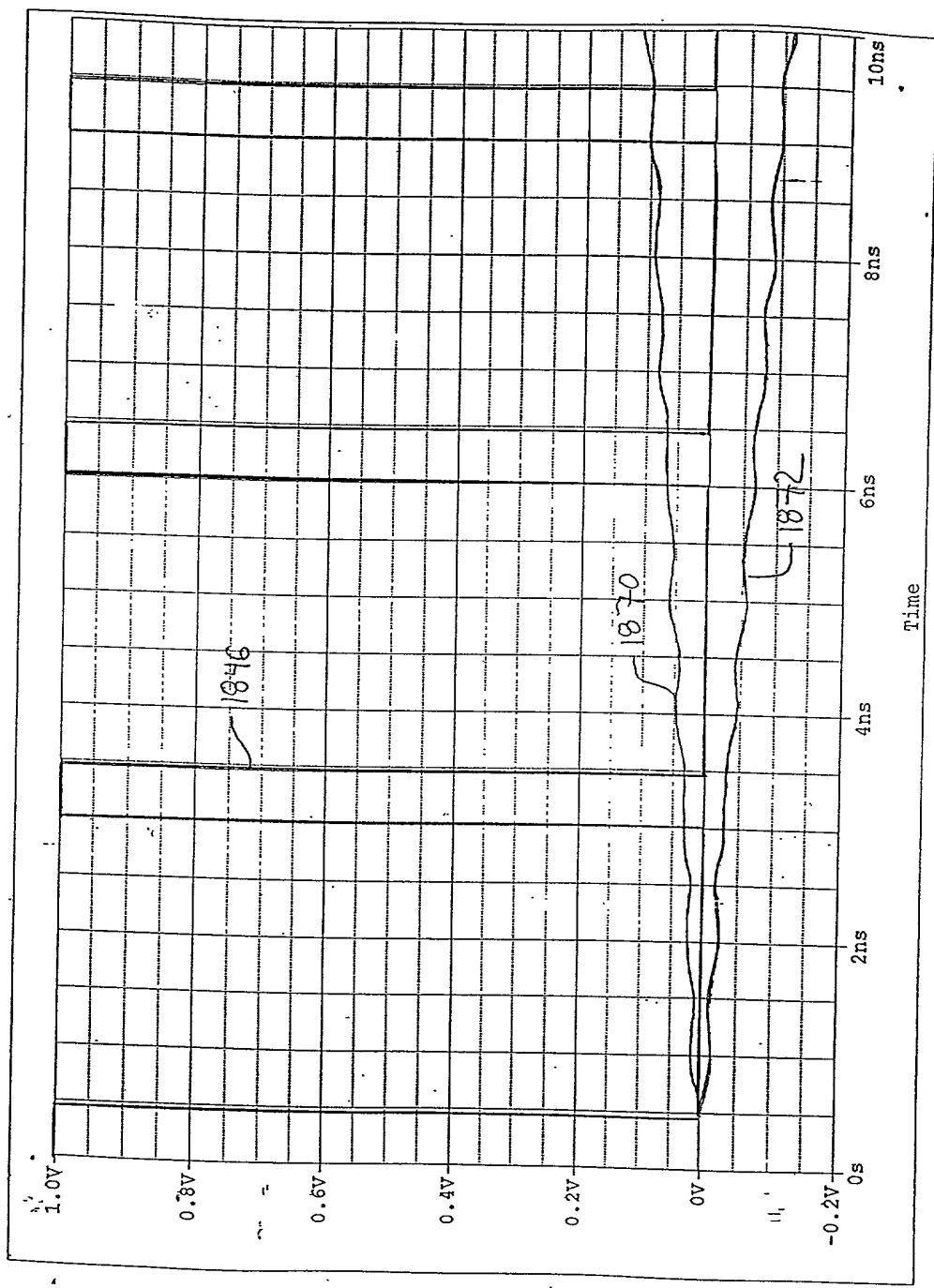


FIG. 18D

09855851 051601

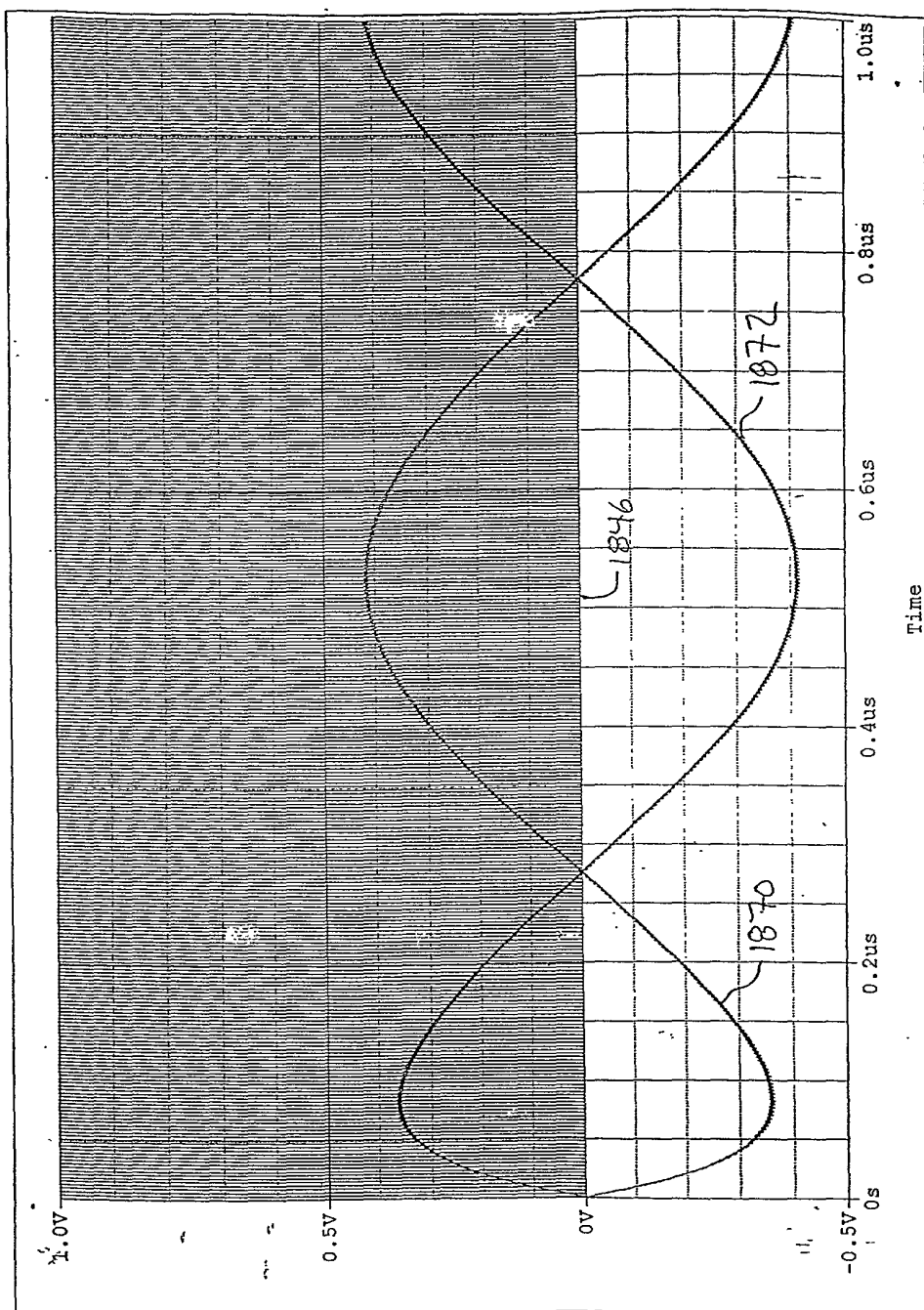


FIG. 18E

1902

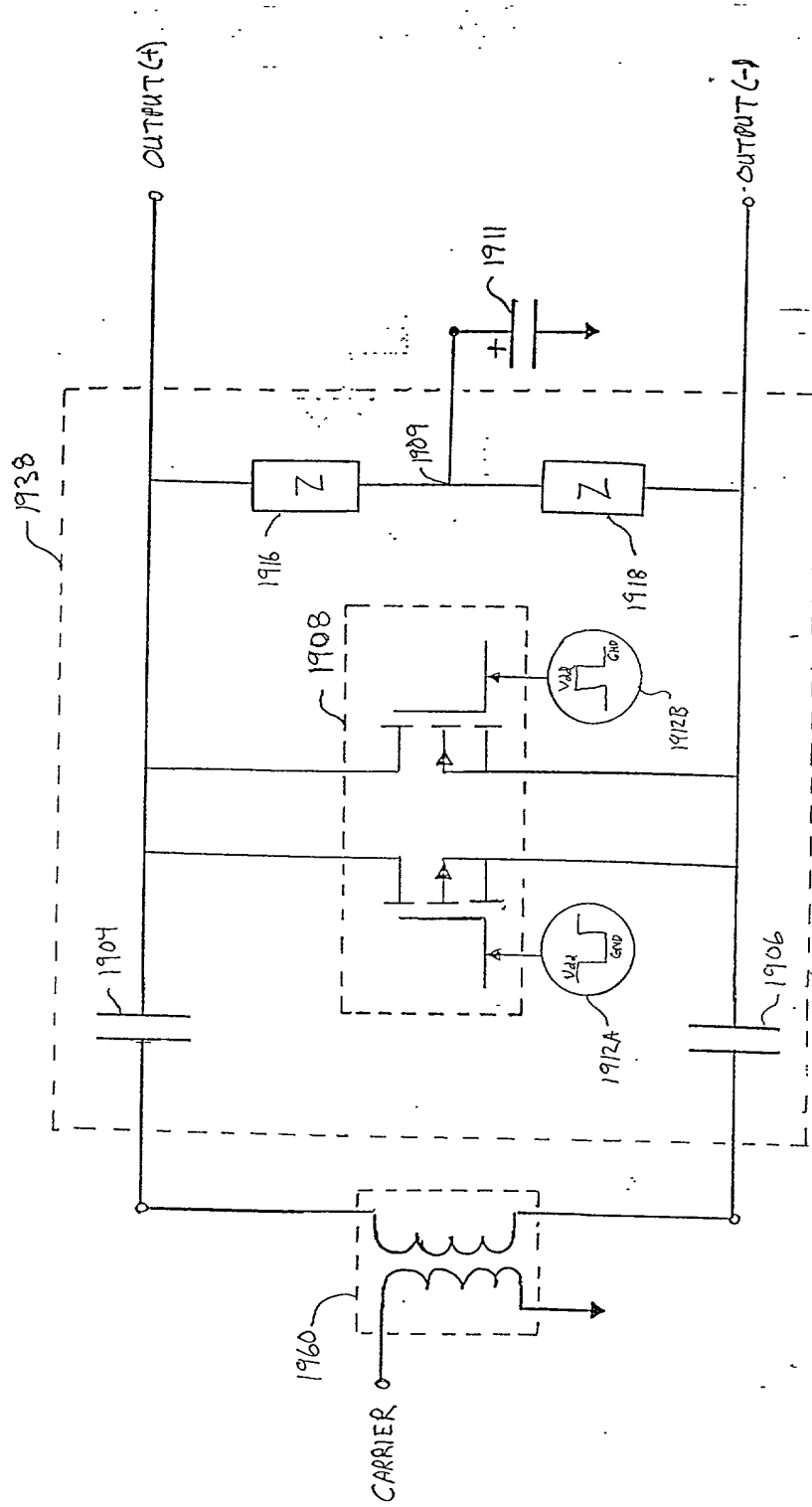


FIG. 19

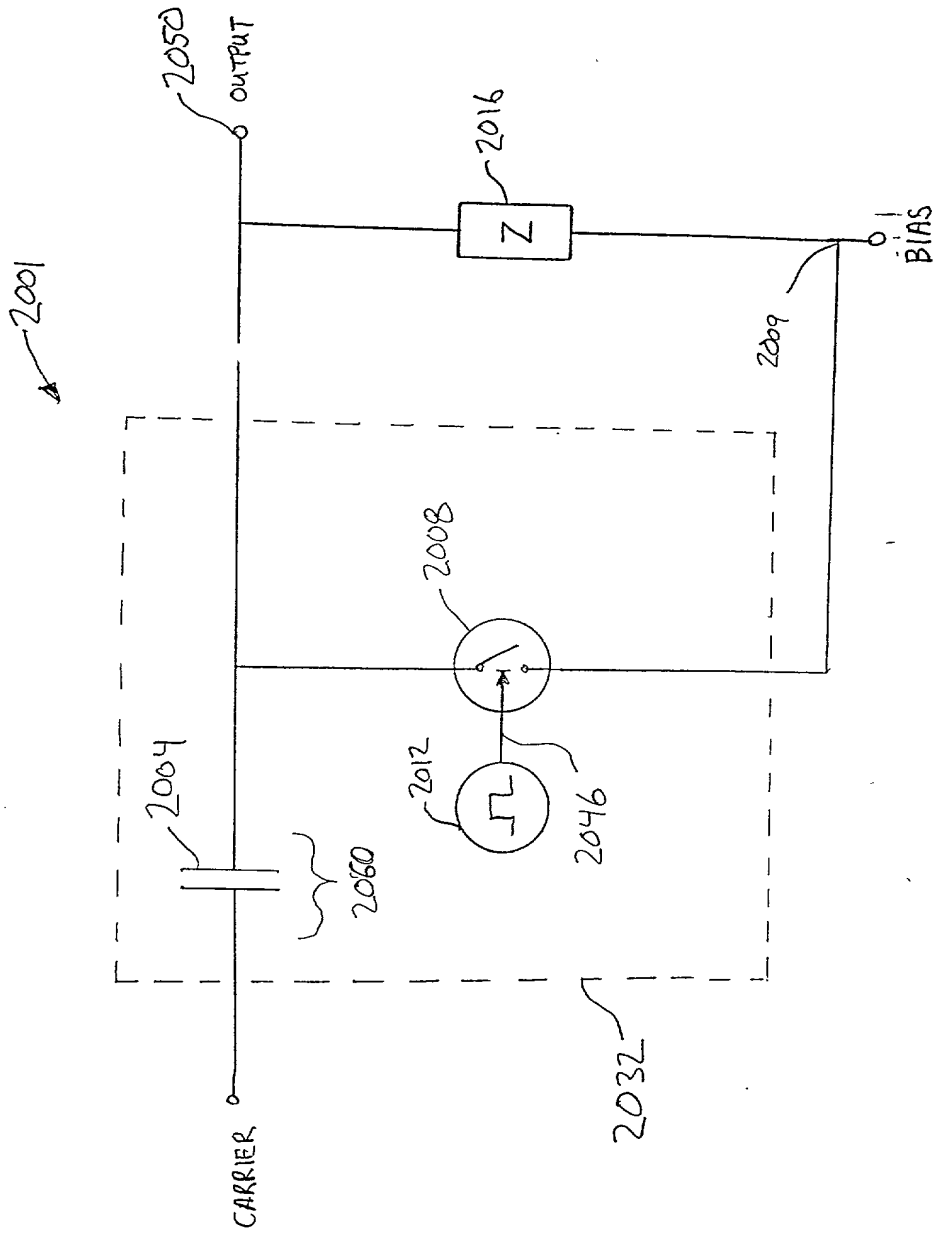


FIG. 20A.

093534 03460
T09750" T5855860

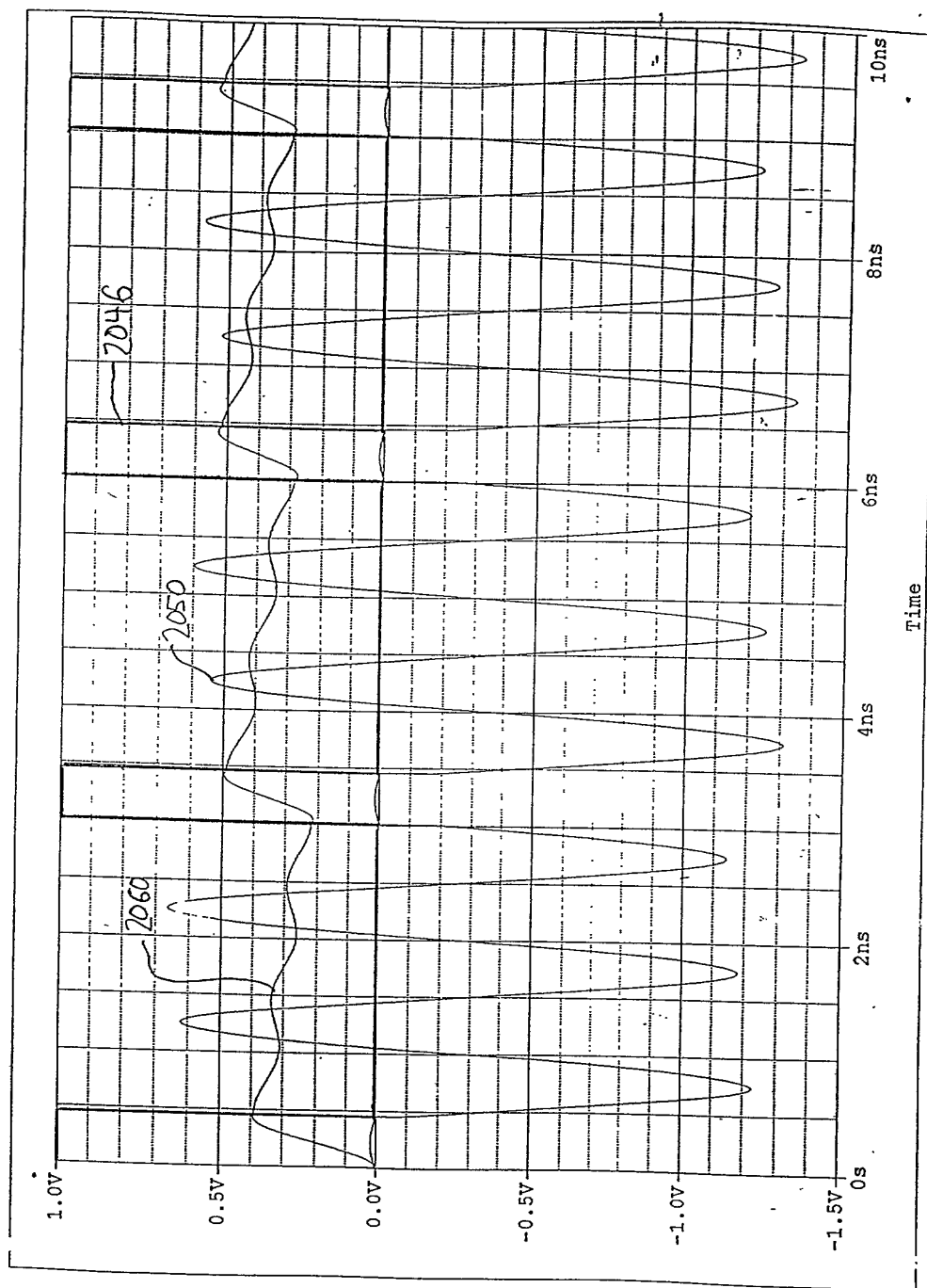


FIG. 20B

09855854 054604

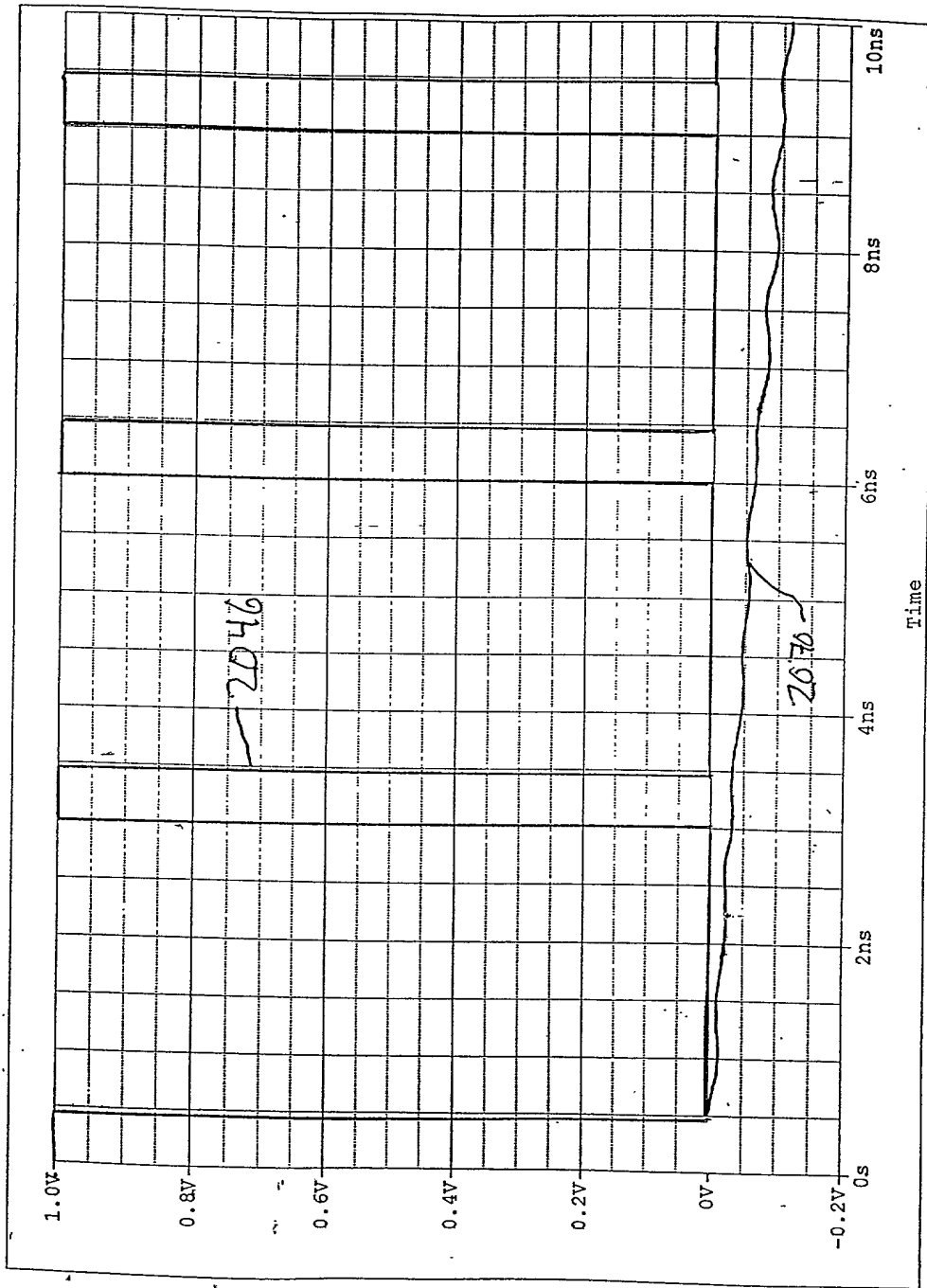


FIG. 20C

FO9T50" T585860

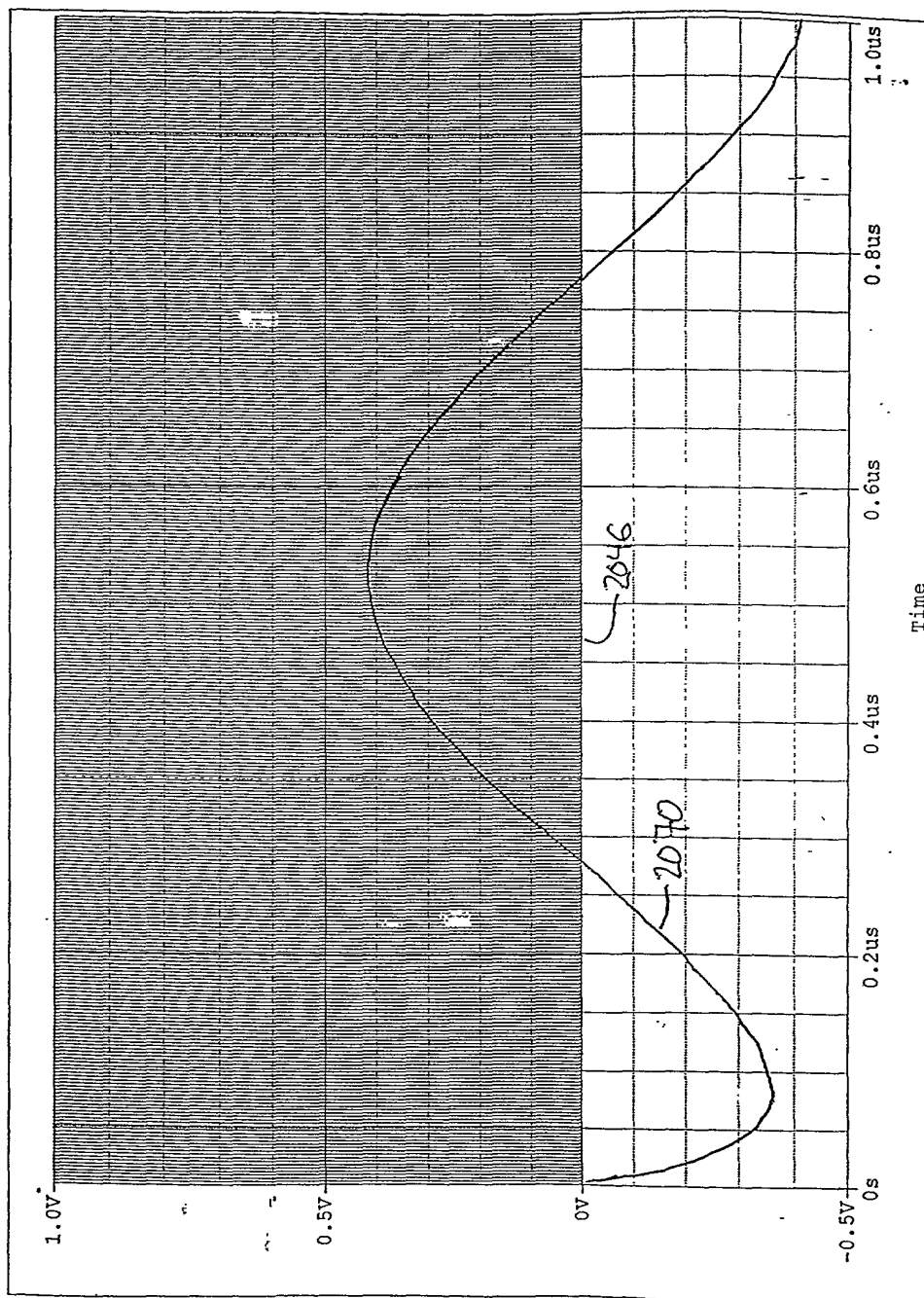


FIG. 20D

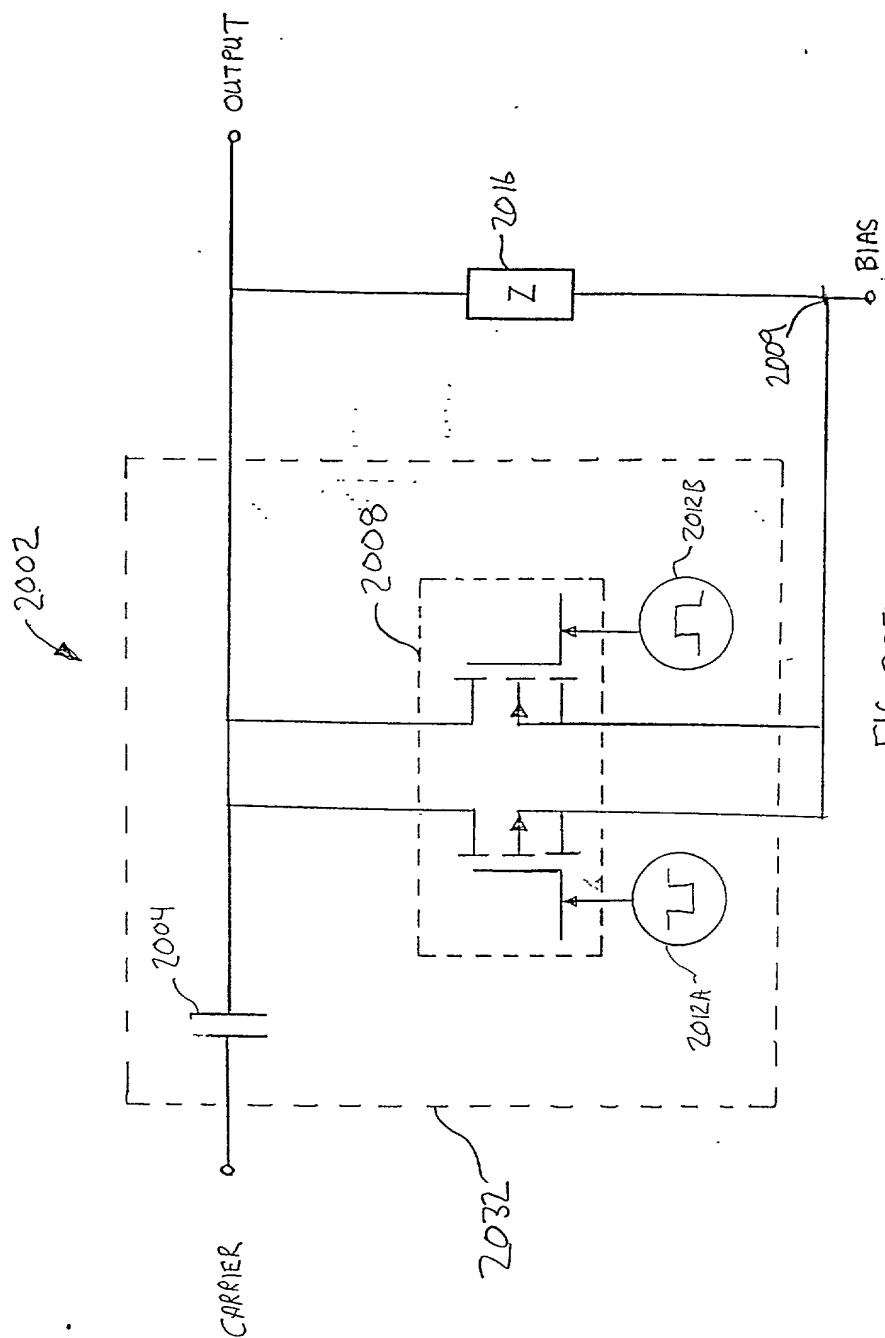


FIG. 20E.

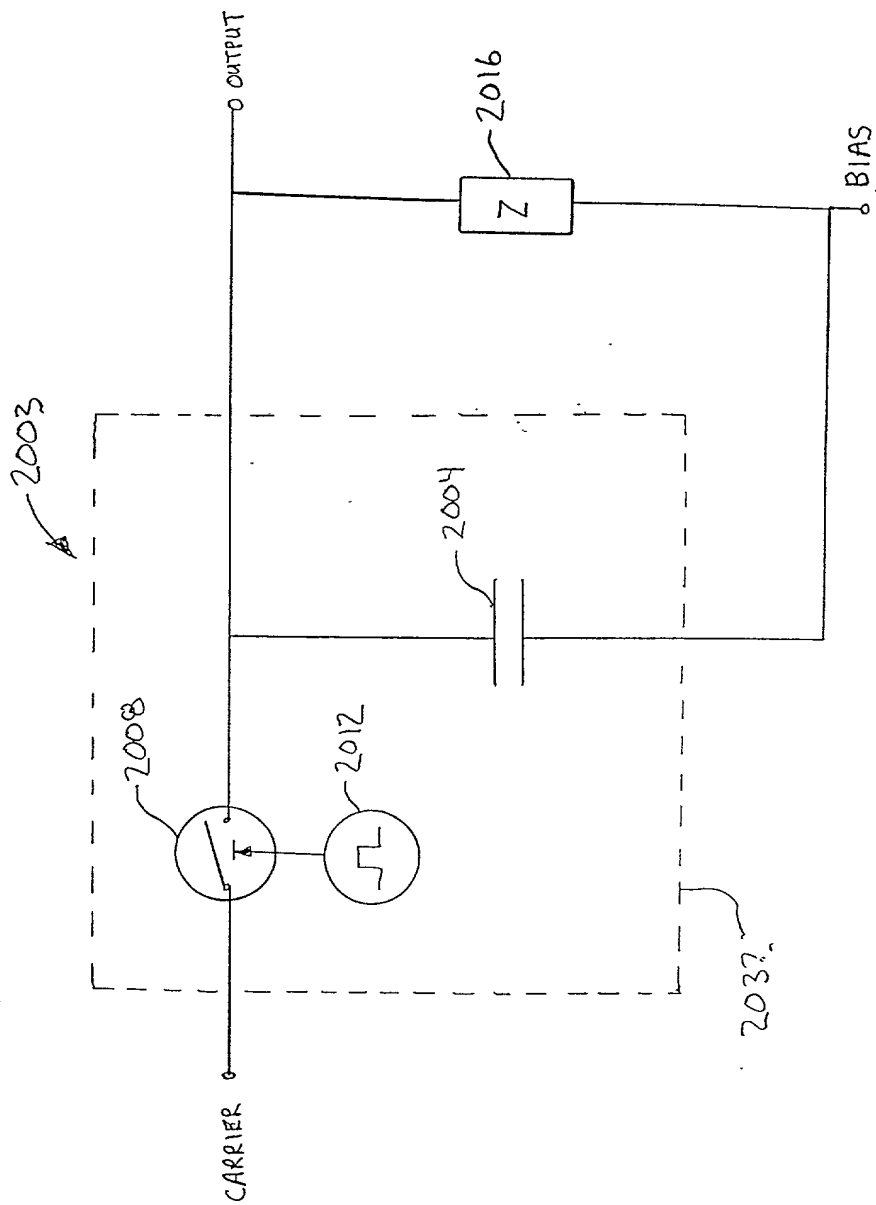


FIG. 20F

2101

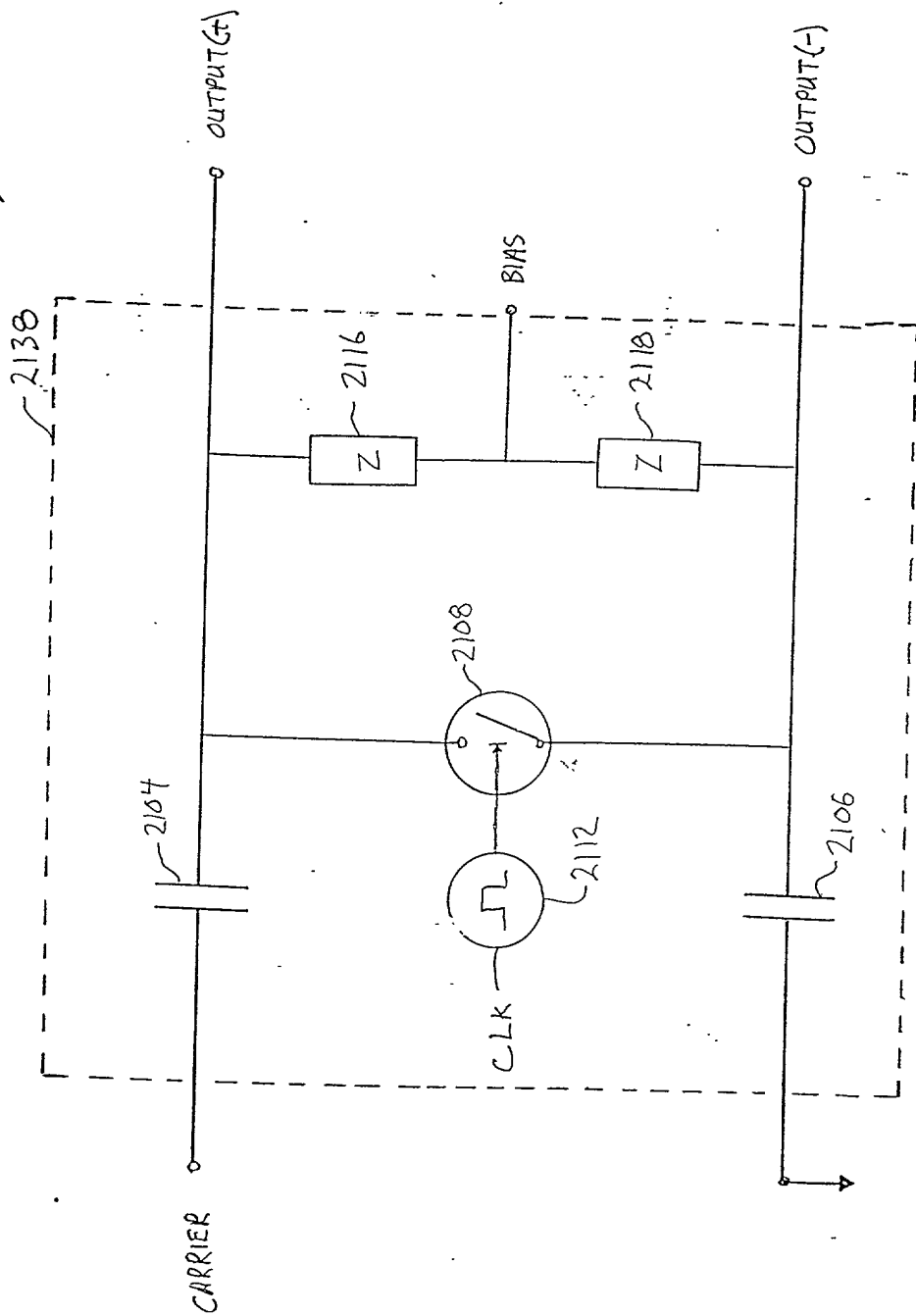


FIG. 21

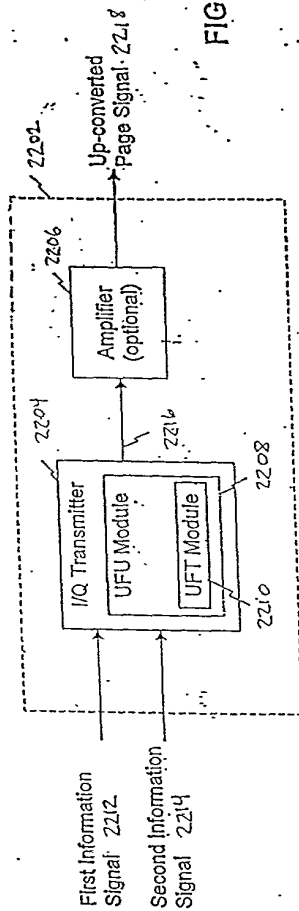


FIG. 22

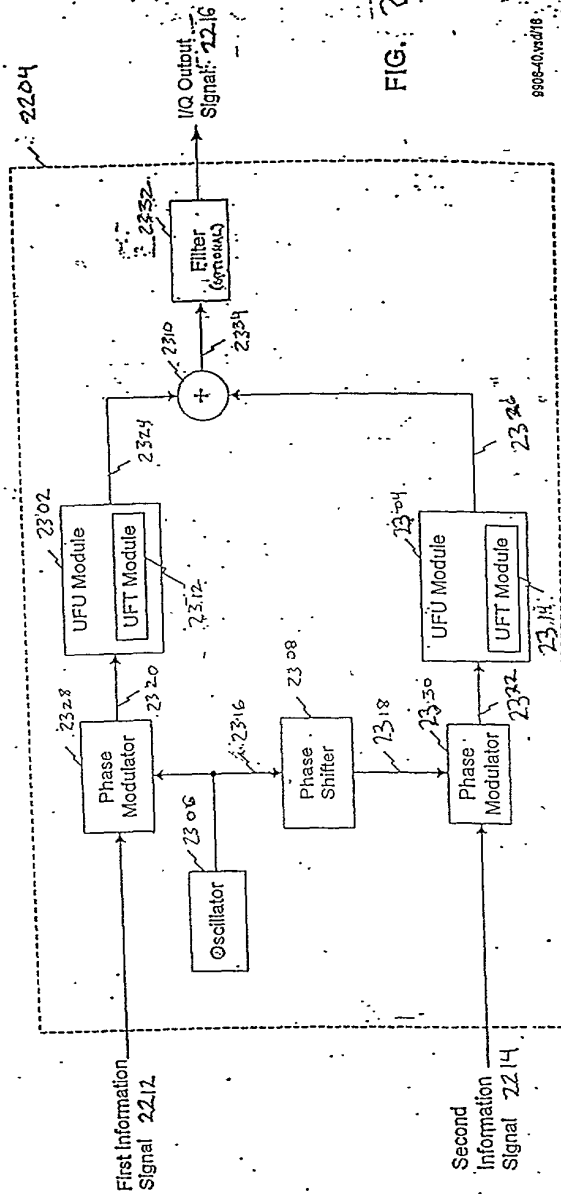
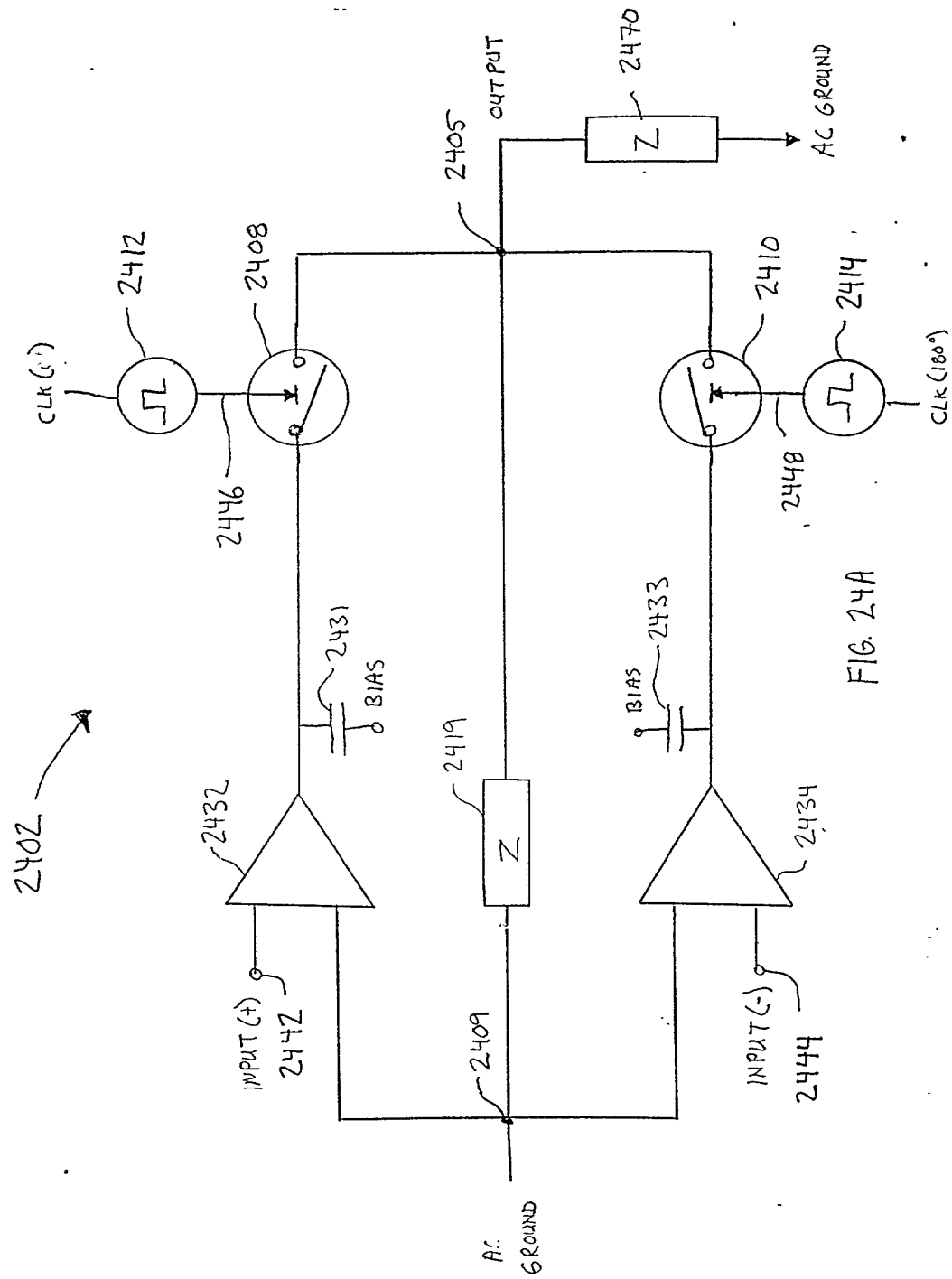
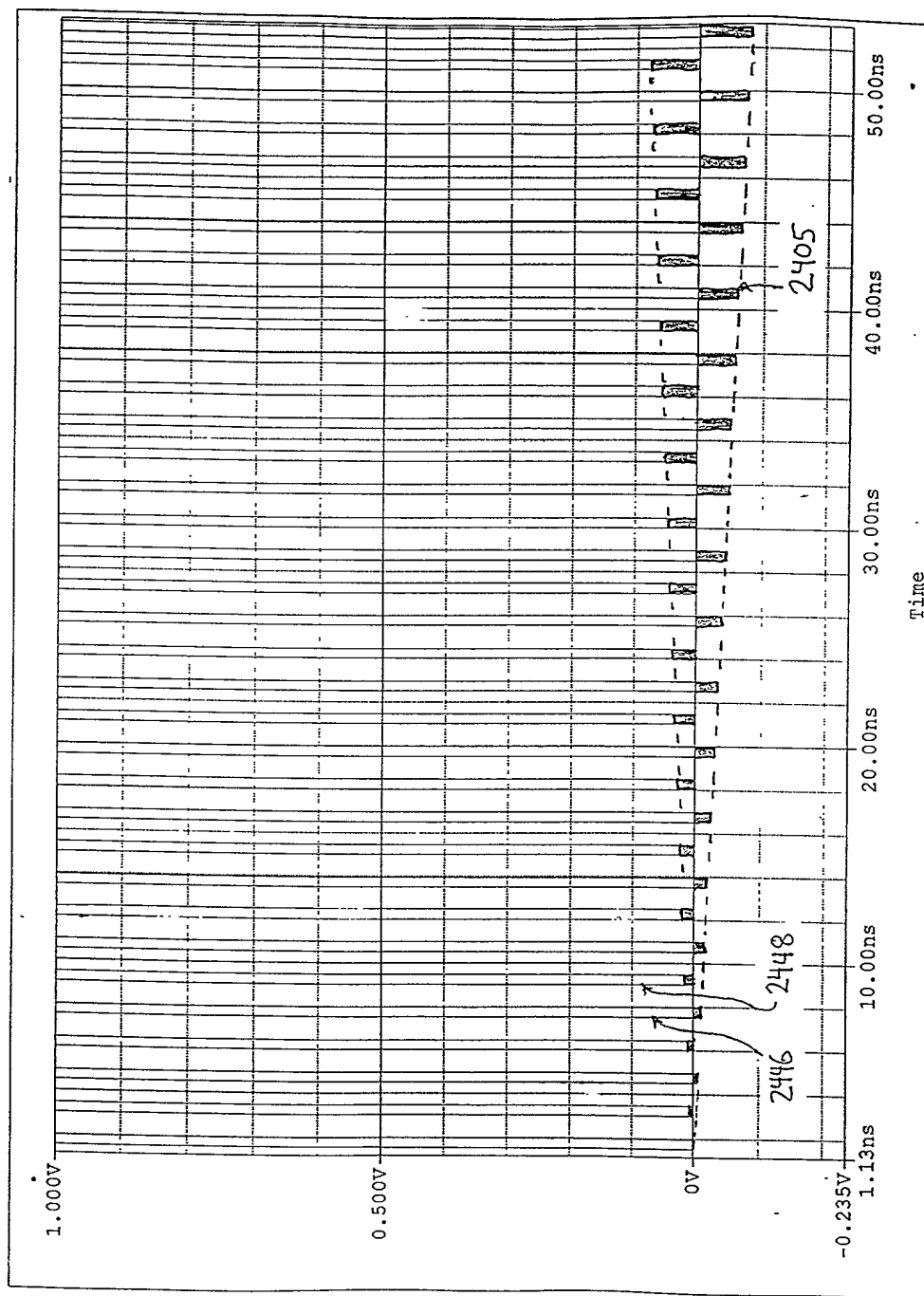


FIG. 23



109750" 15859860



F16.24B

1985860 05464 150709

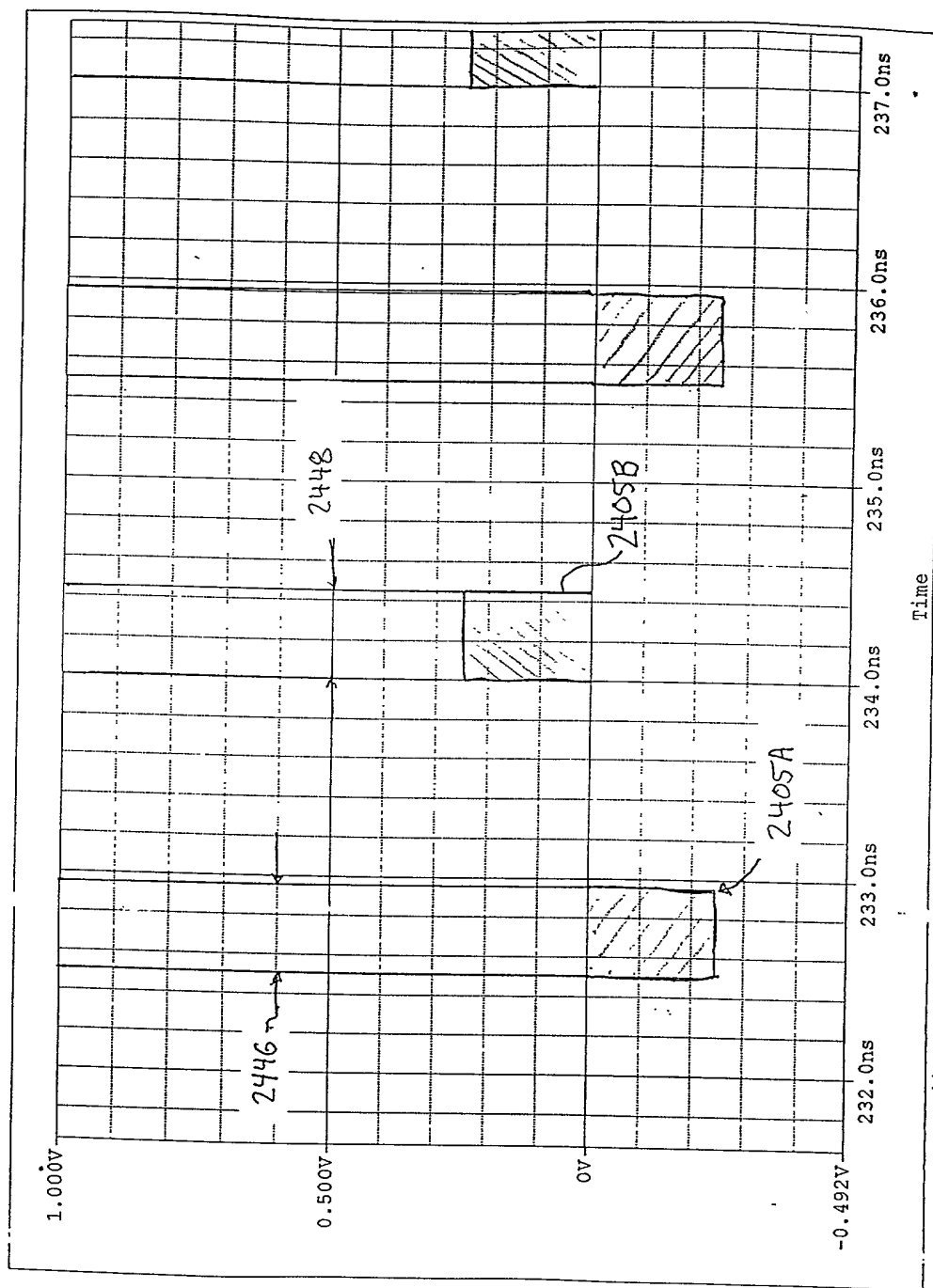


FIG. 24C

09855851 051601

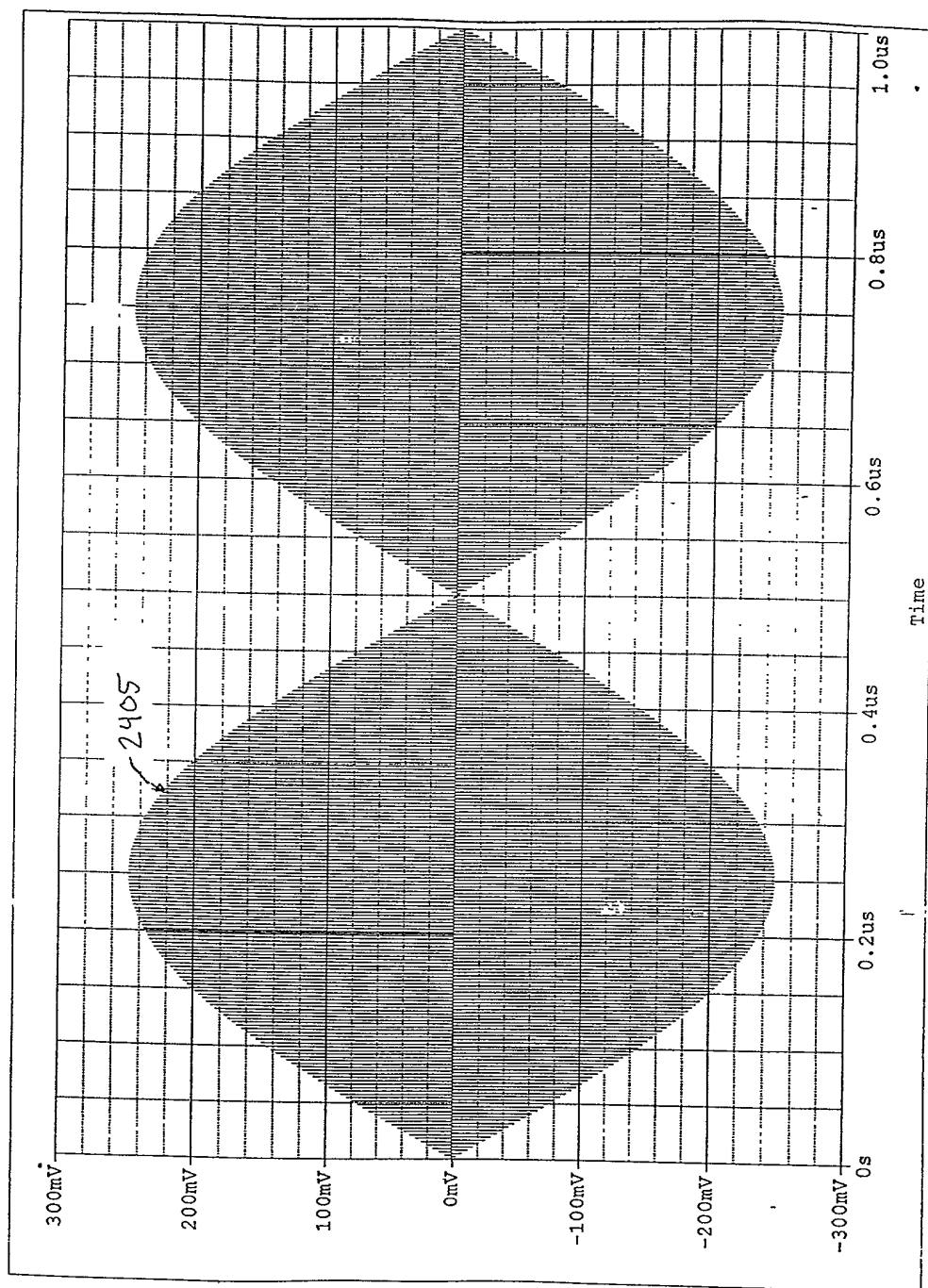


FIG. 24D

09855851 051604

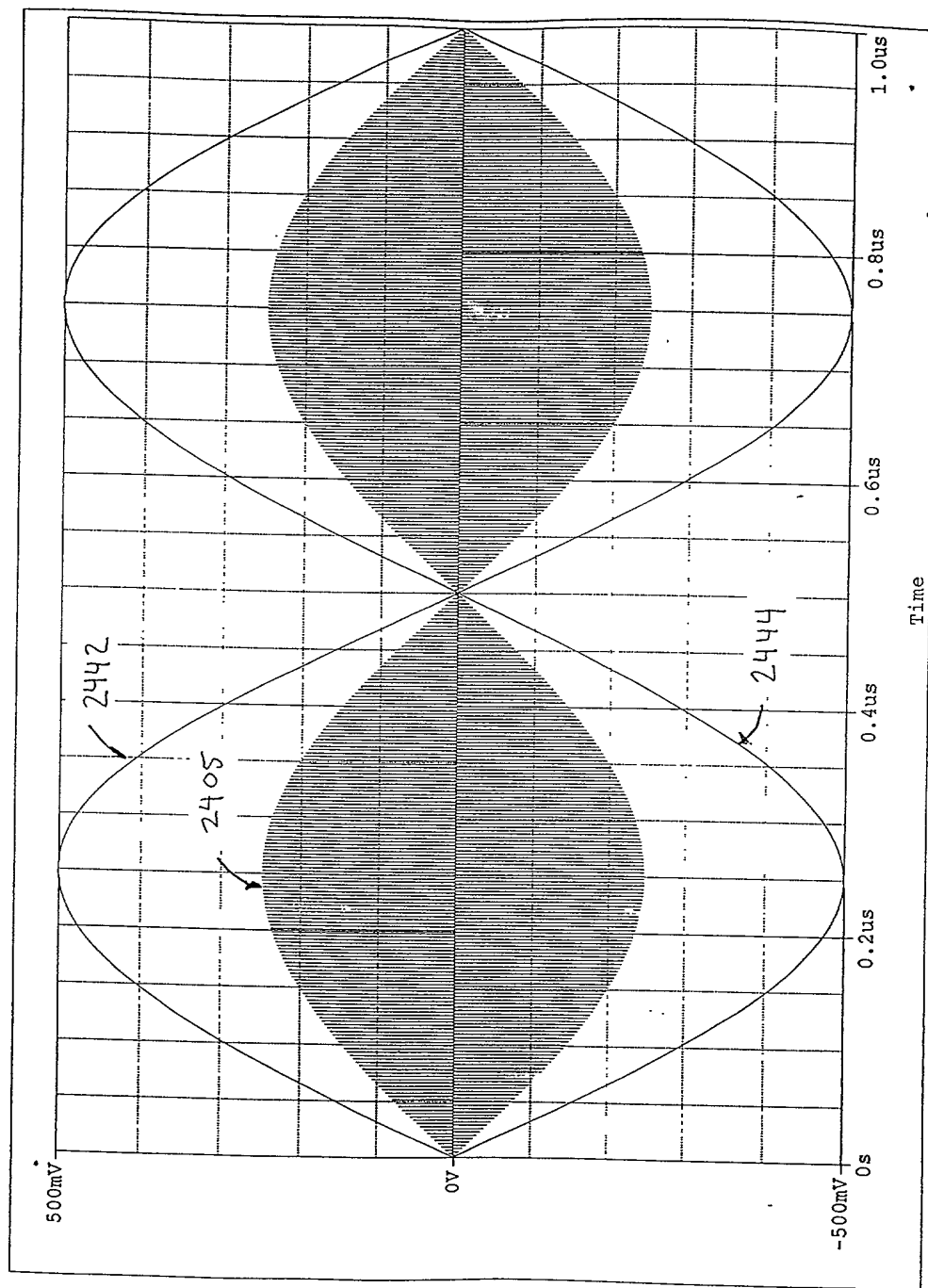


FIG. 24E

109750" 1555860

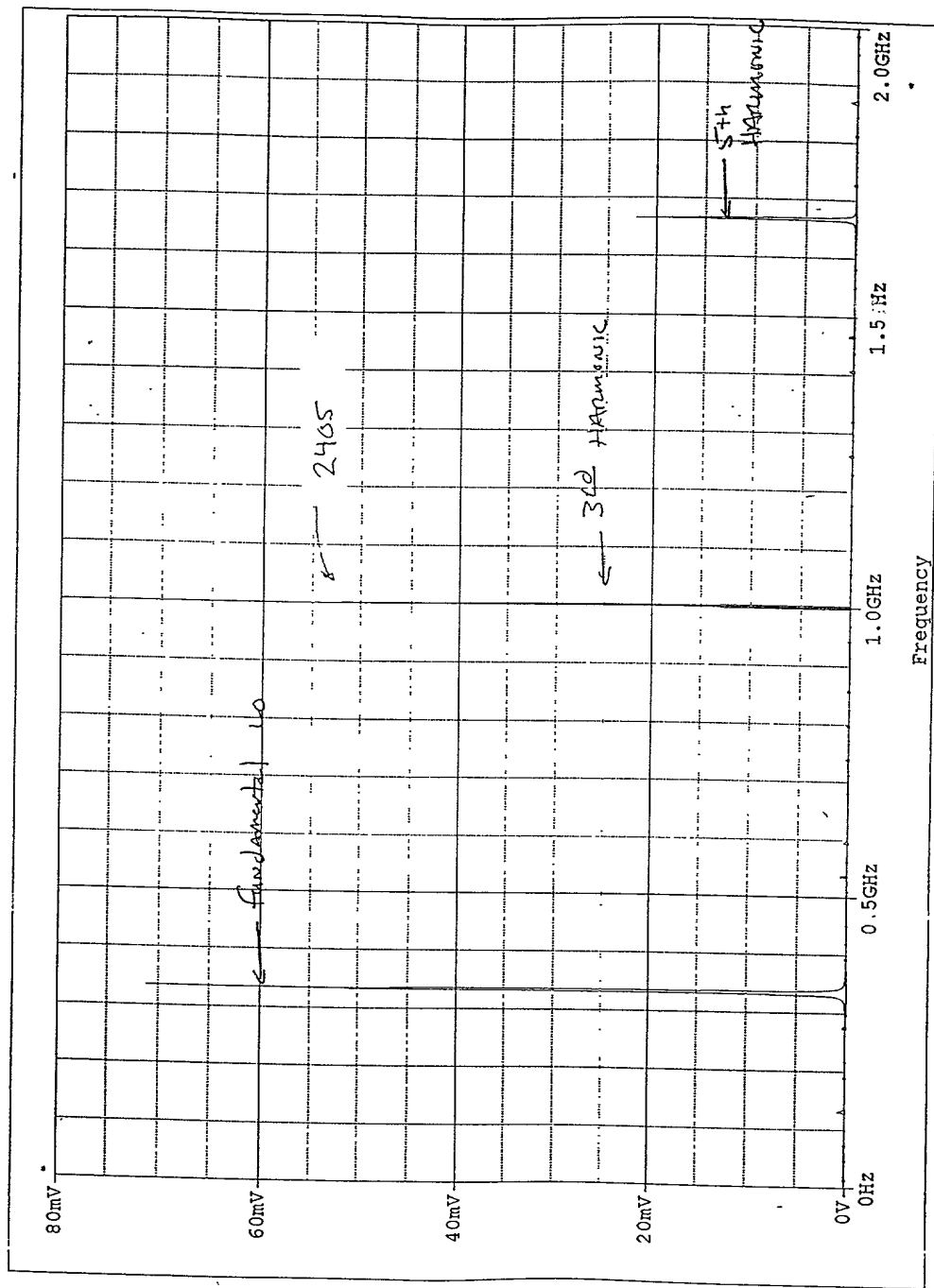
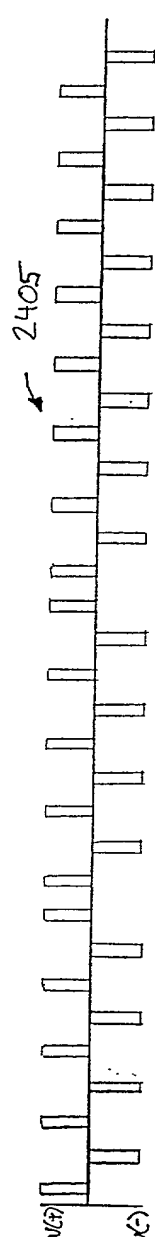
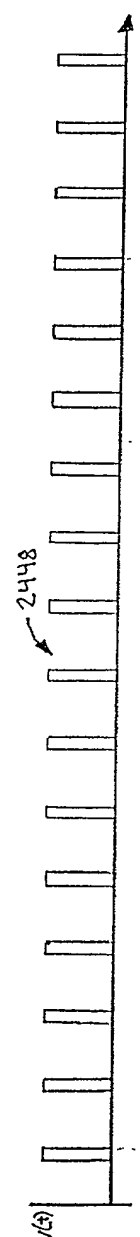
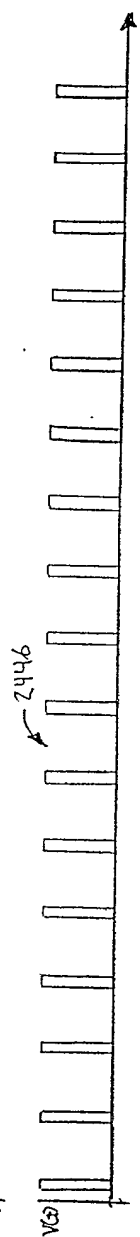
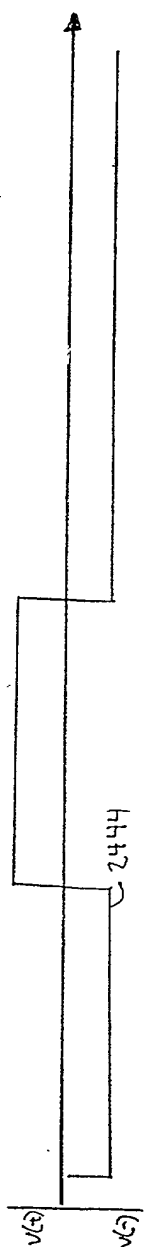
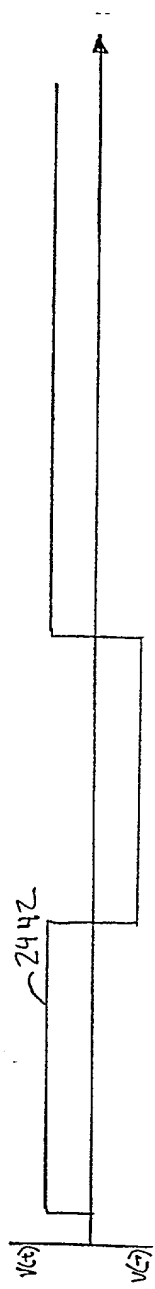


FIG. 24F



2502

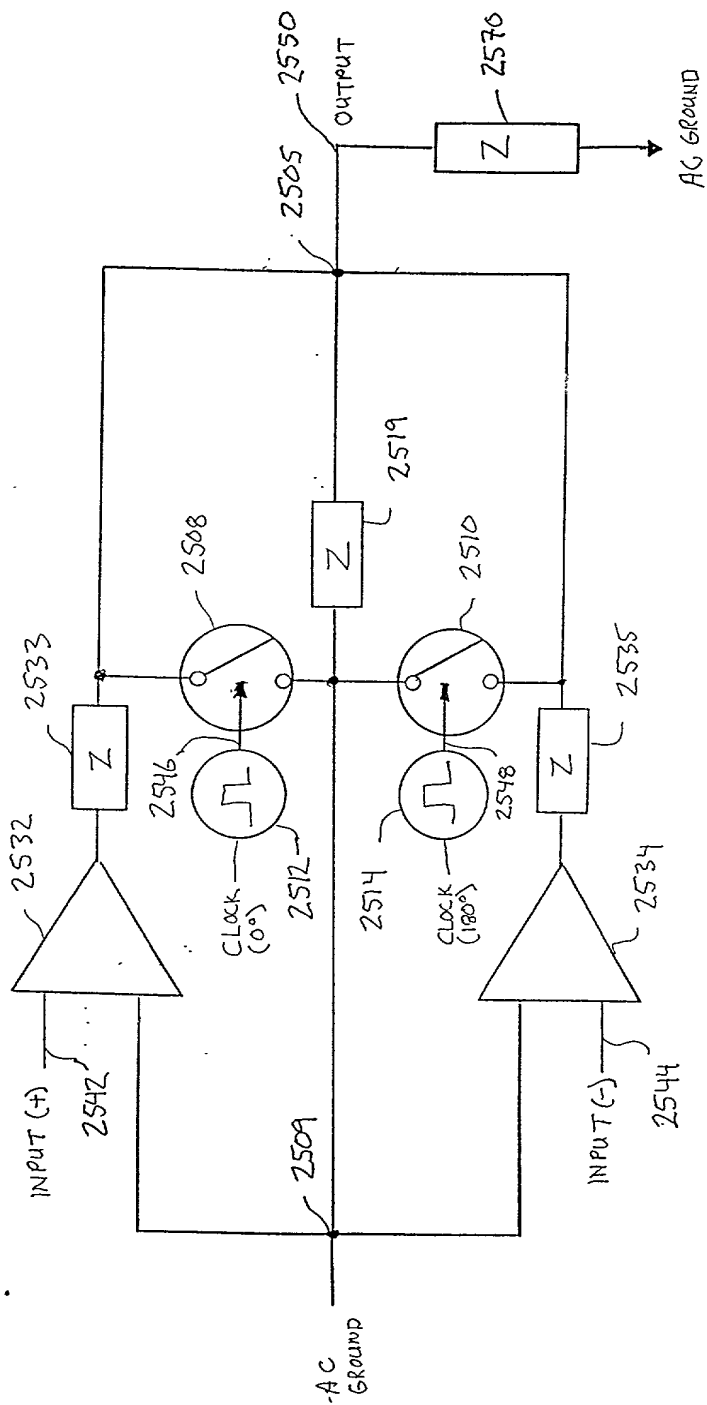
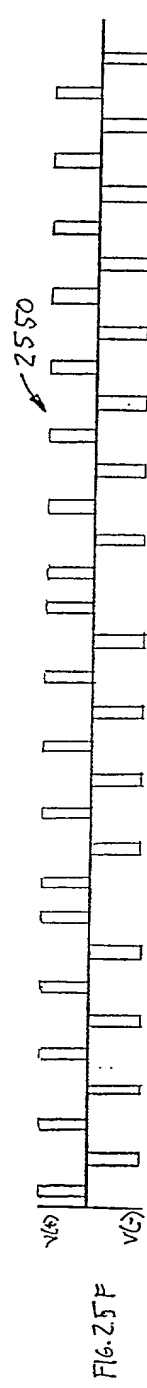
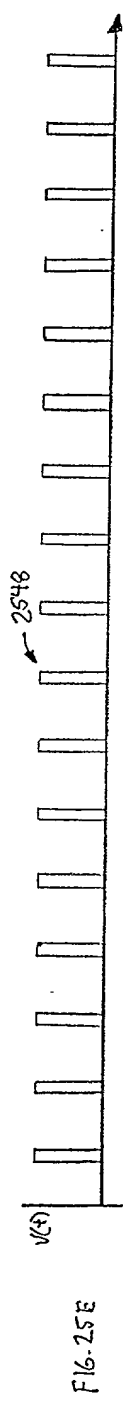
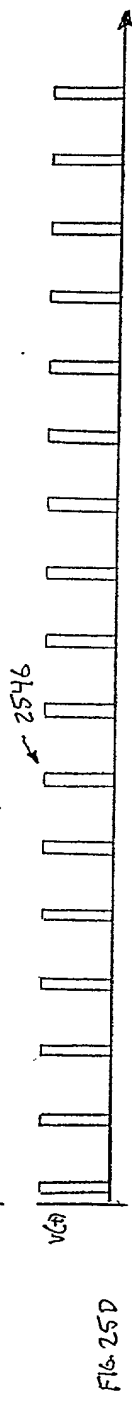
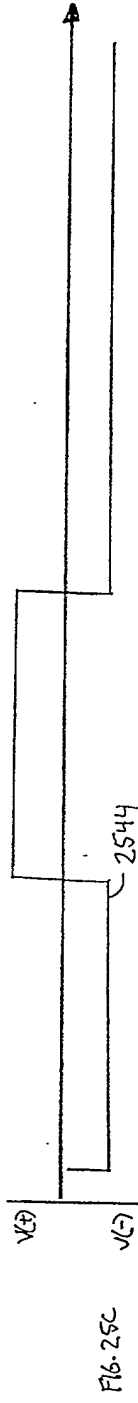
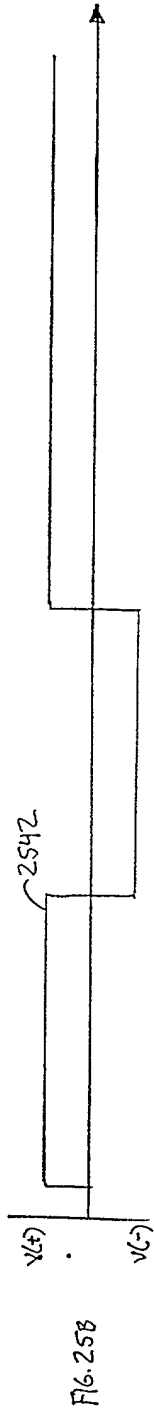


FIG. 25A



2602

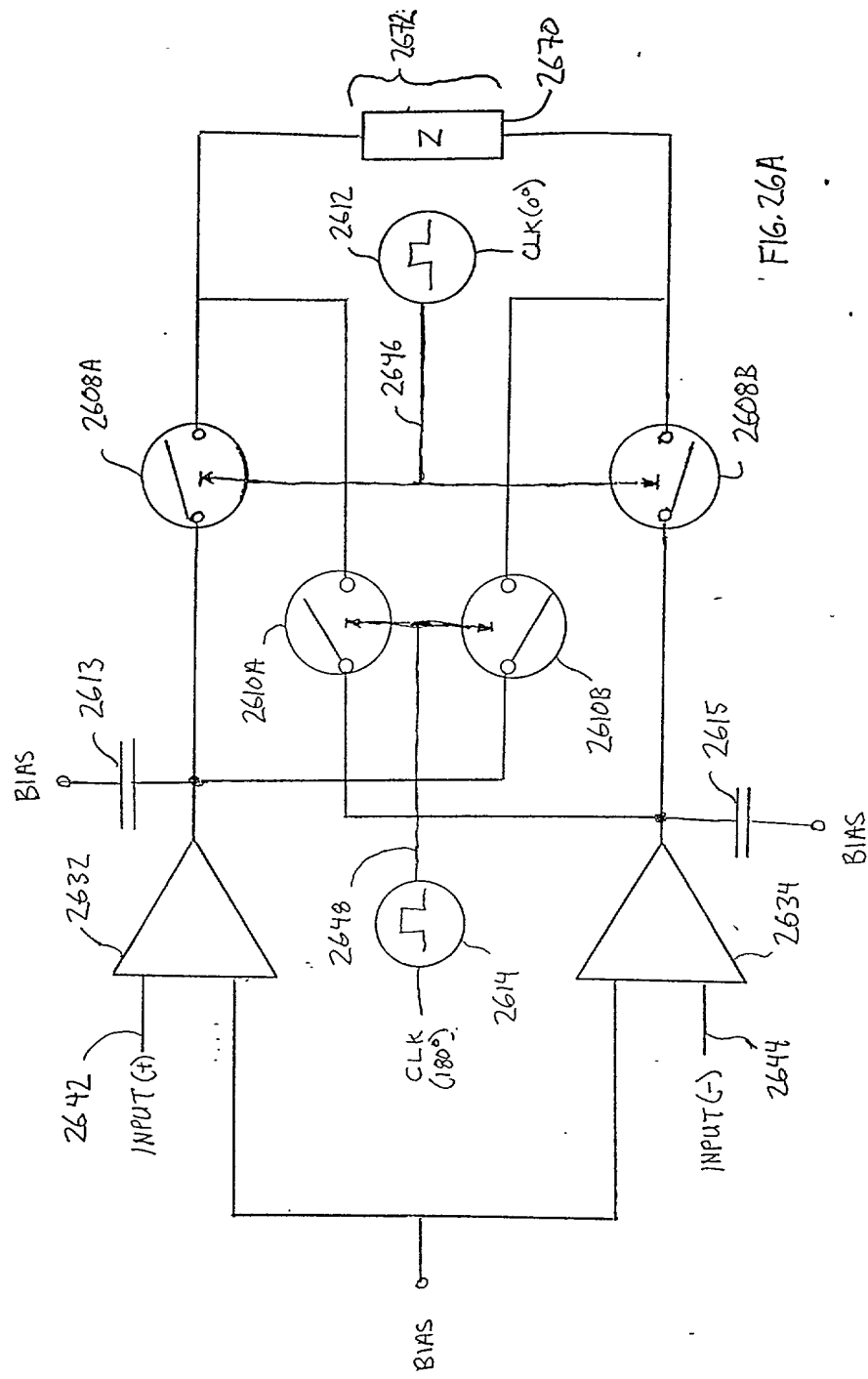


FIG. 26A

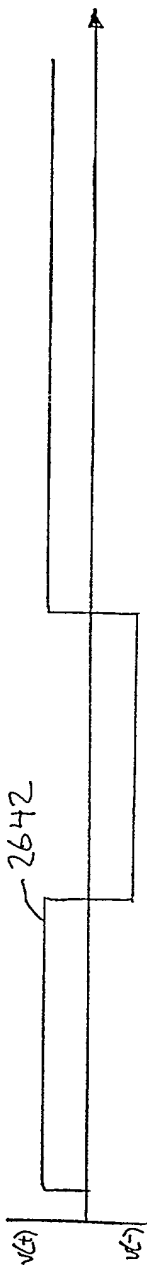


FIG. 26B

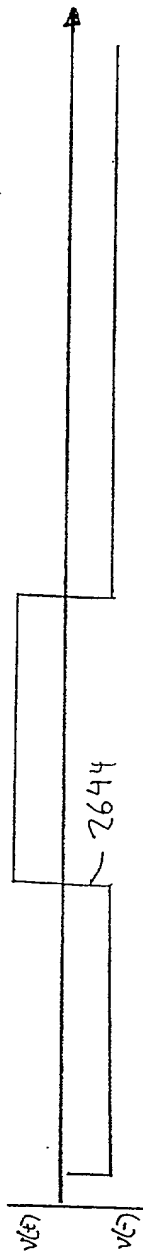


FIG. 26C

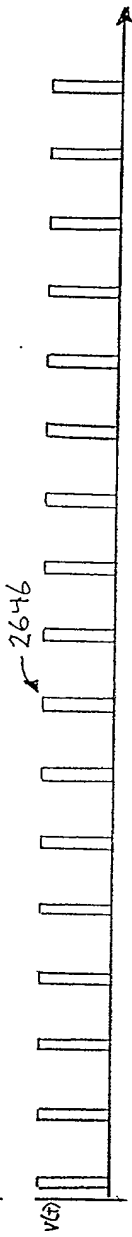


FIG. 26D

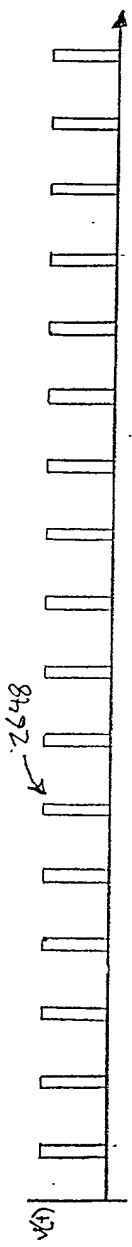


FIG. 26E

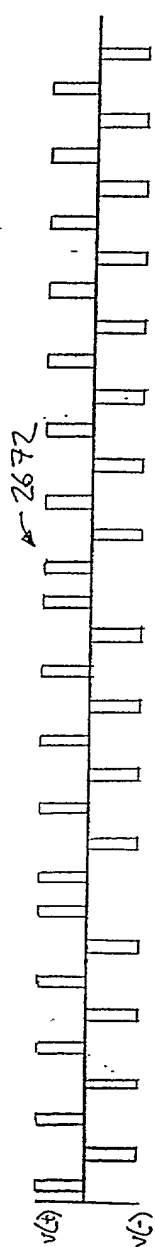


FIG. 26F

2702

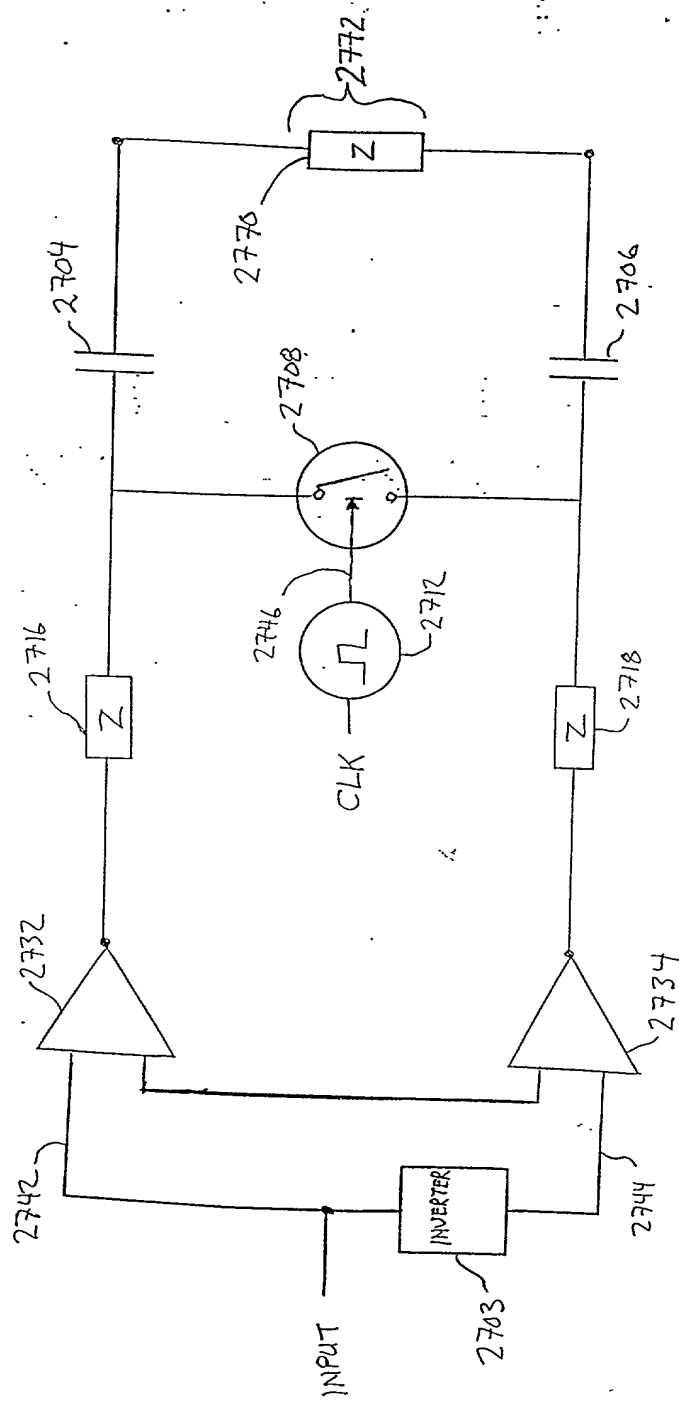
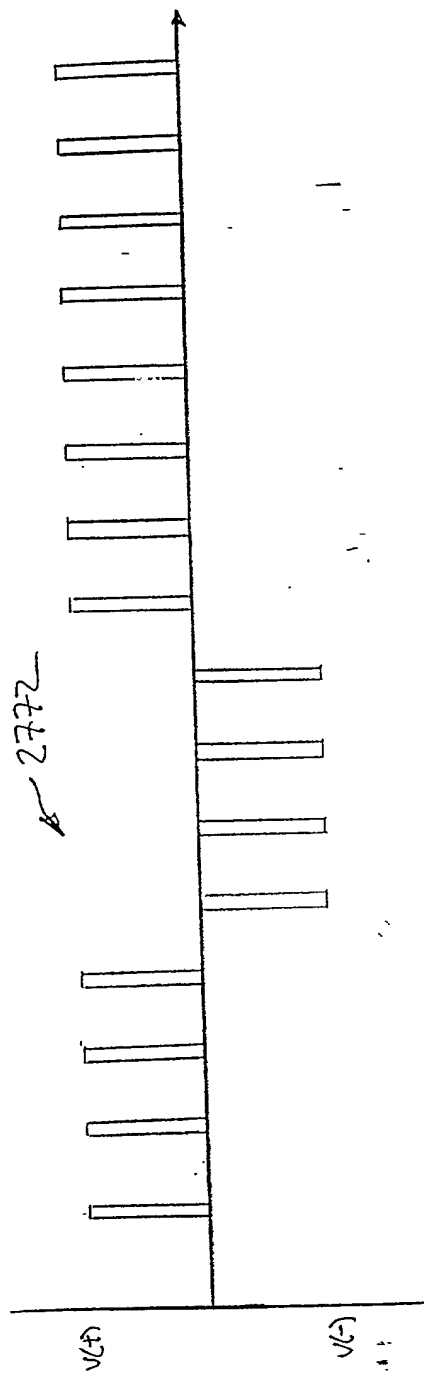
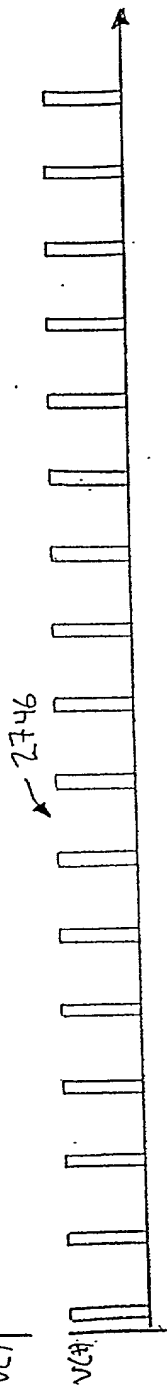
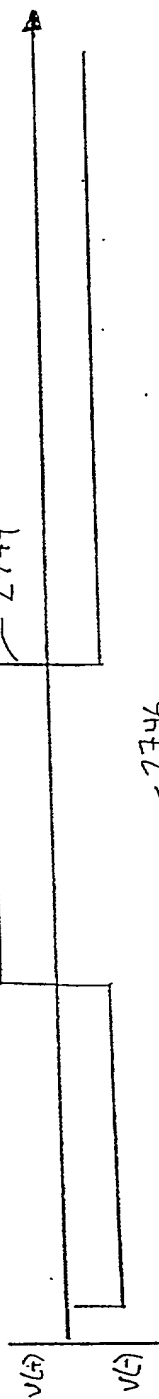
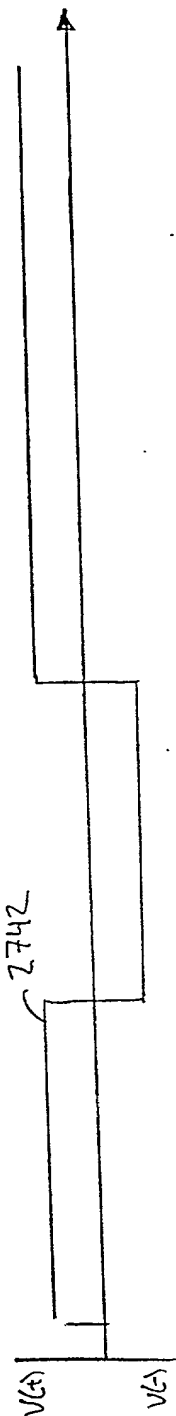


FIG. 27A



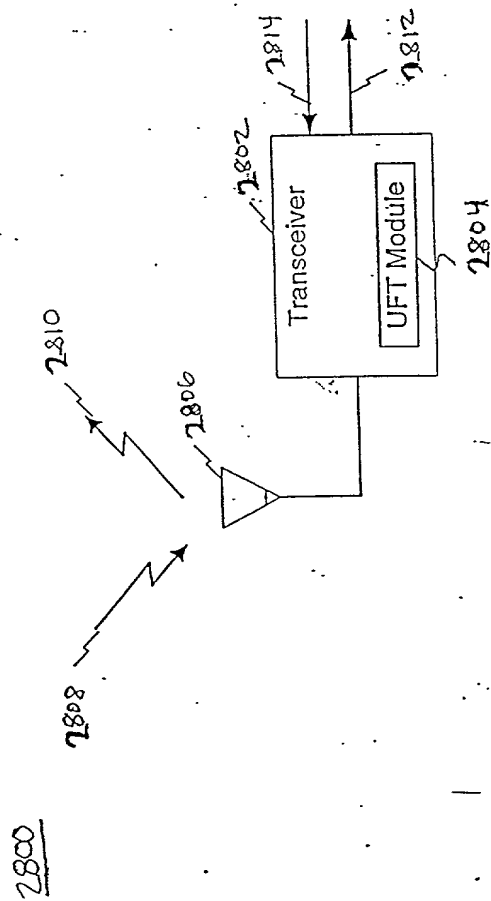
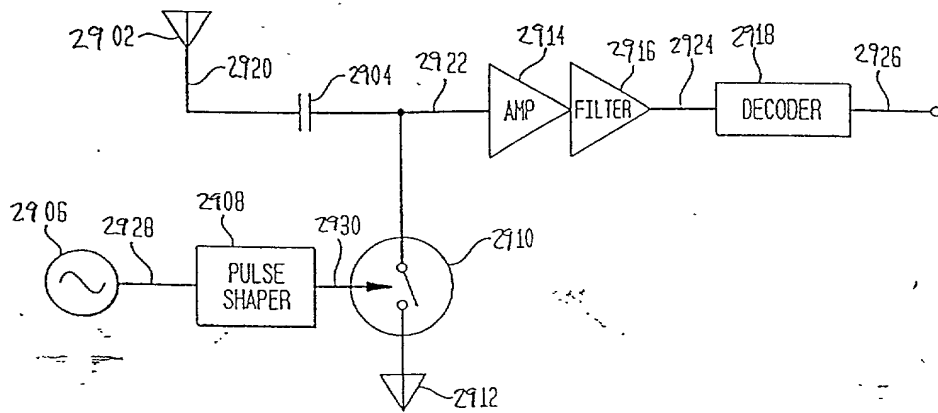


FIG. 28

FIG. 29

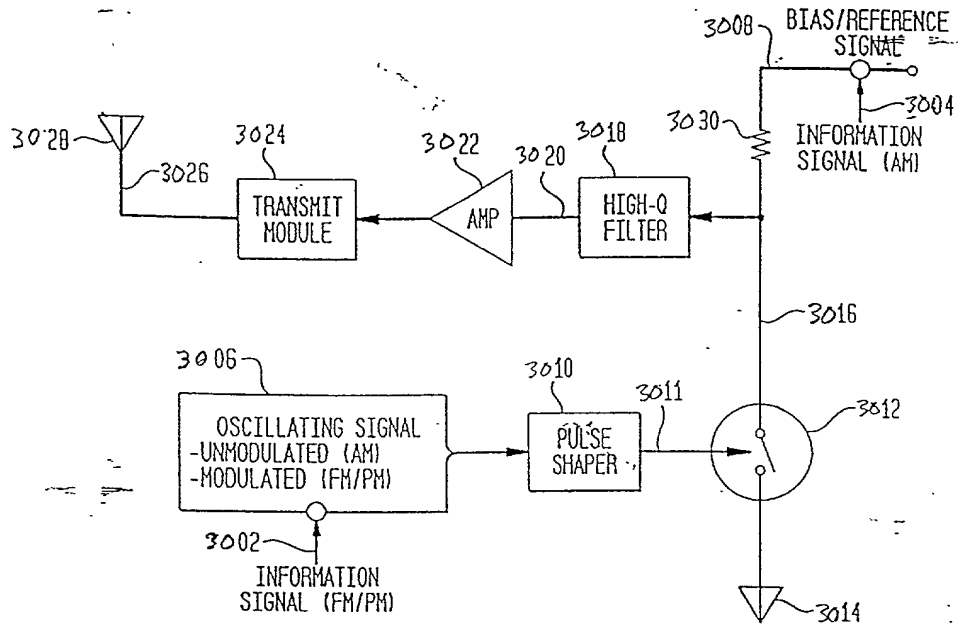
EXEMPLARY RECEIVER FOR
UNIVERSAL FREQUENCY DOWN-CONVERSION



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FIG. 30

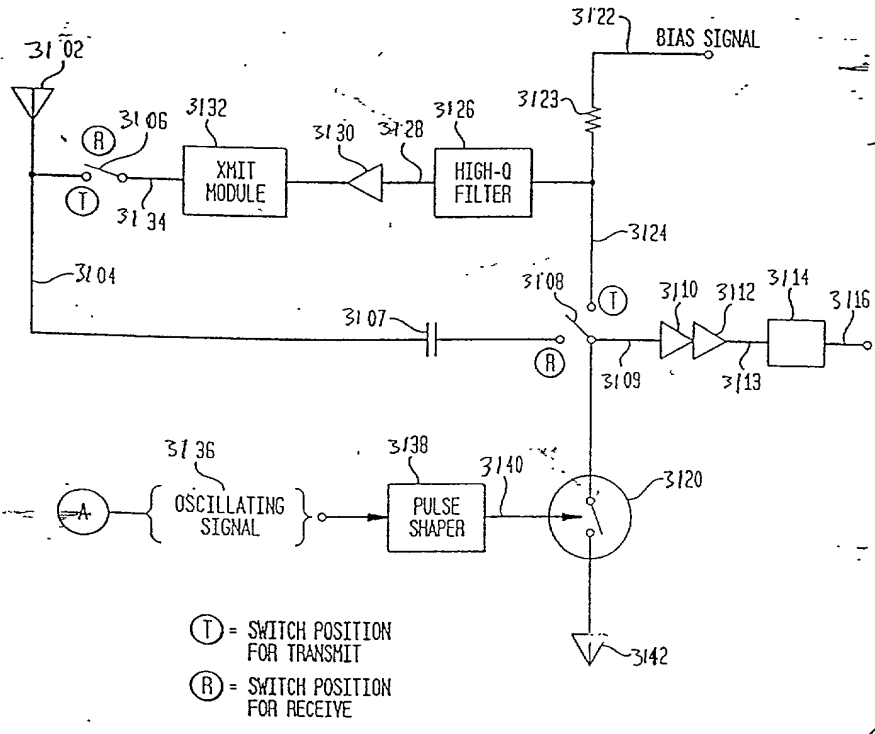
EXEMPLARY TRANSMITTER USING
THE PRESENT INVENTION



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FIG. 31A

TRANSMITTER USING PRESENT INVENTION IN A
HALF DUPLEX COMMUNICATIONS CIRCUIT WITH A
UNIVERSAL FREQUENCY DOWN-CONVERTER (FM & PM)



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FIG. 31B

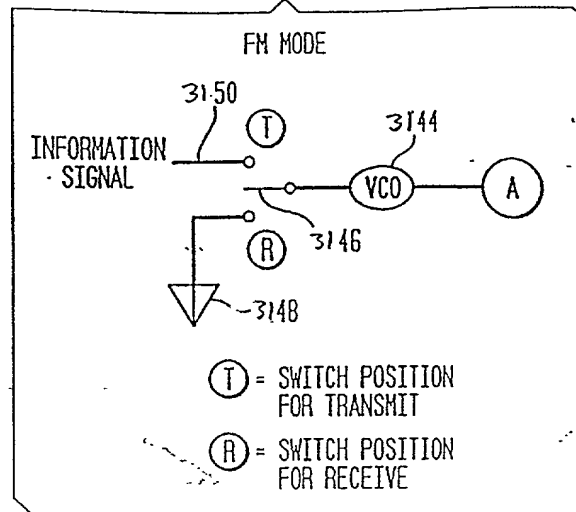


FIG. 31C

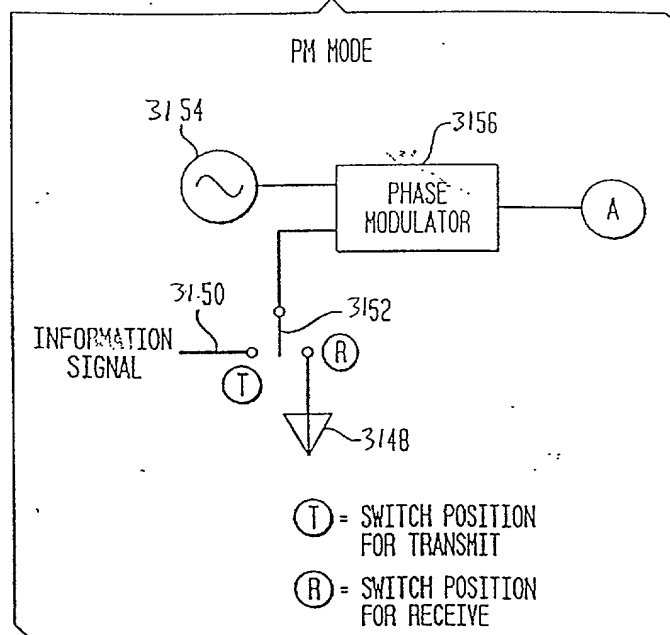
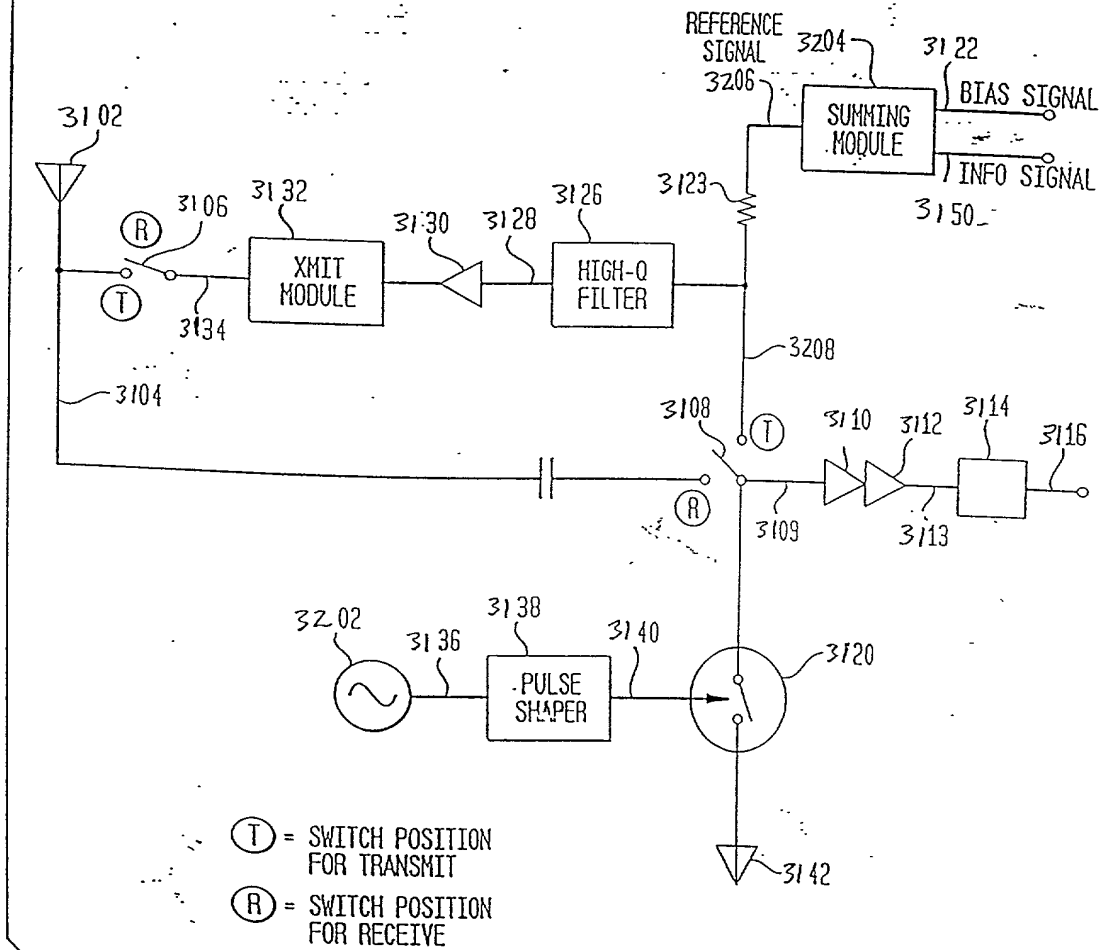


FIG. 32

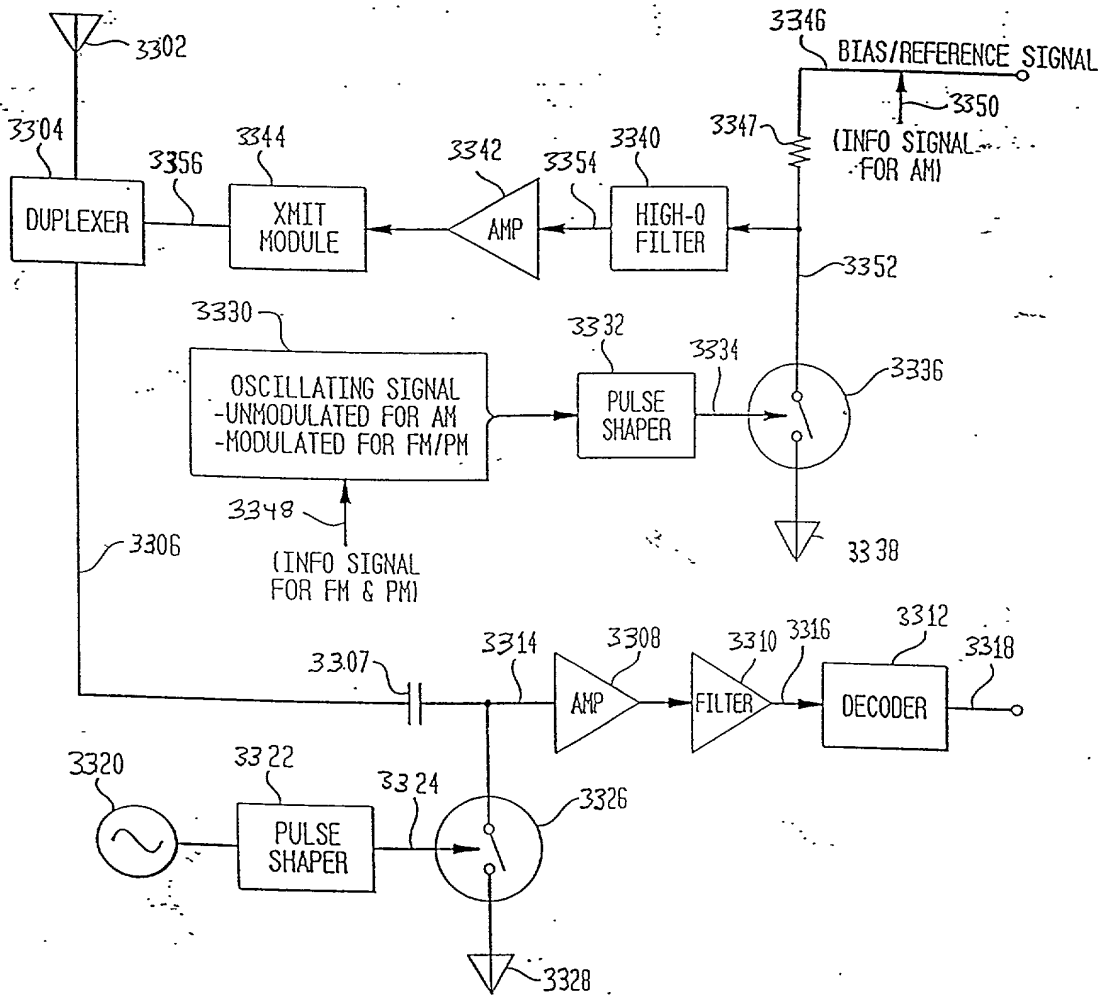
TRANSMITTER USING PRESENT INVENTION IN
A HALF-DUPLEX COMMUNICATIONS CIRCUIT
WITH A UNIVERSAL FREQUENCY DOWN-CONVERTER (AM)



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FIG. 33

TRANSMITTER USING PRESENT INVENTION IN
FULL DUPLEX COMMUNICATIONS CIRCUIT WITH
UNIVERSAL FREQUENCY DOWN-CONVERTER



09855851 051601

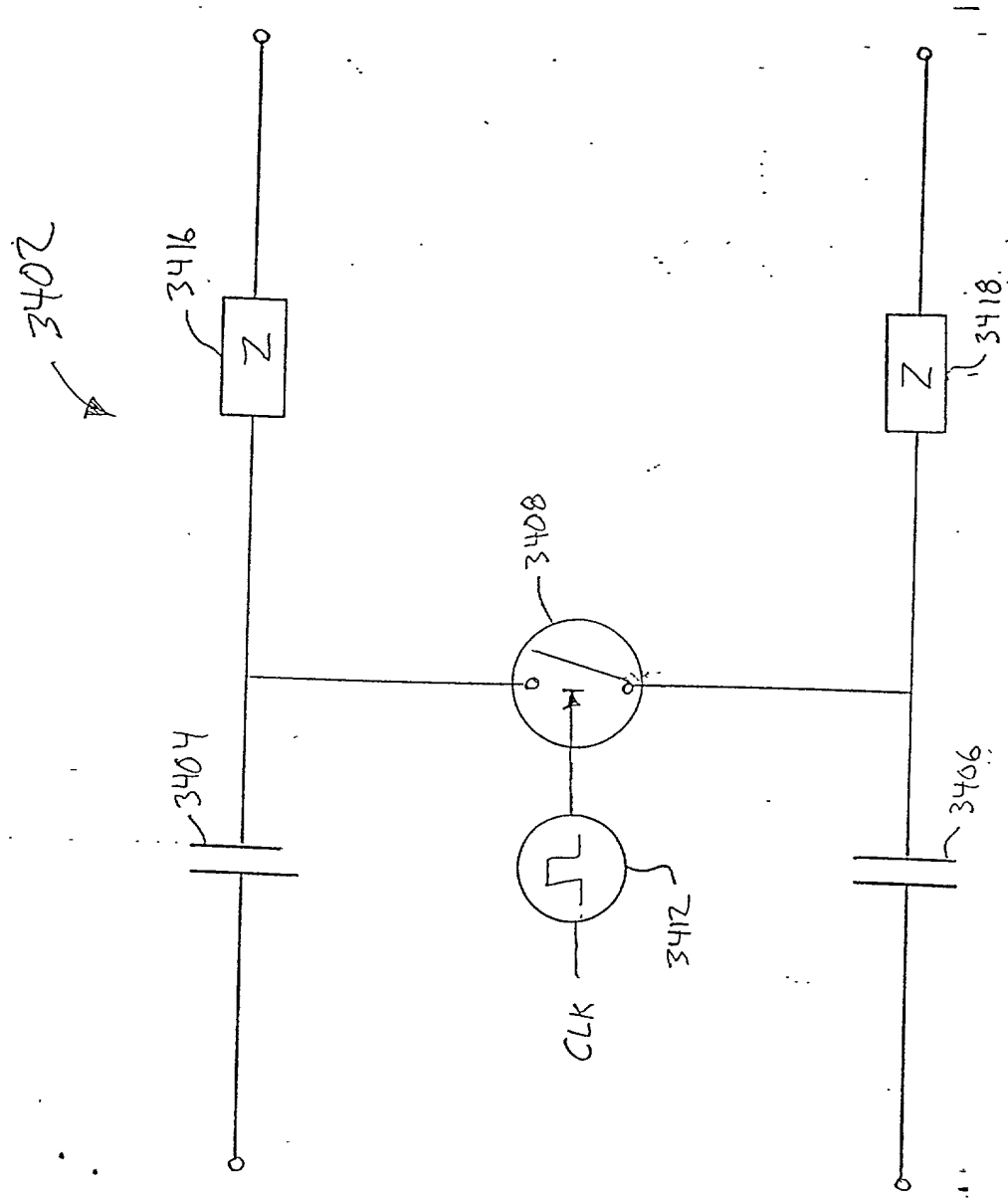


FIG. 34

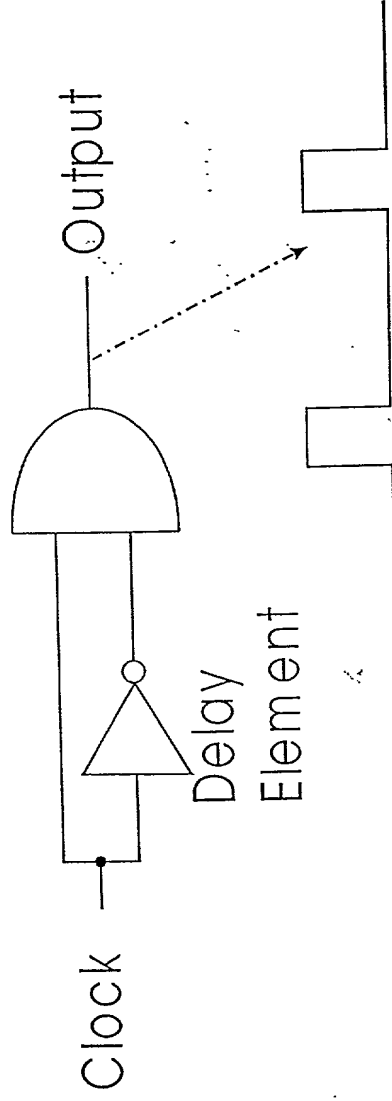


FIG. 35

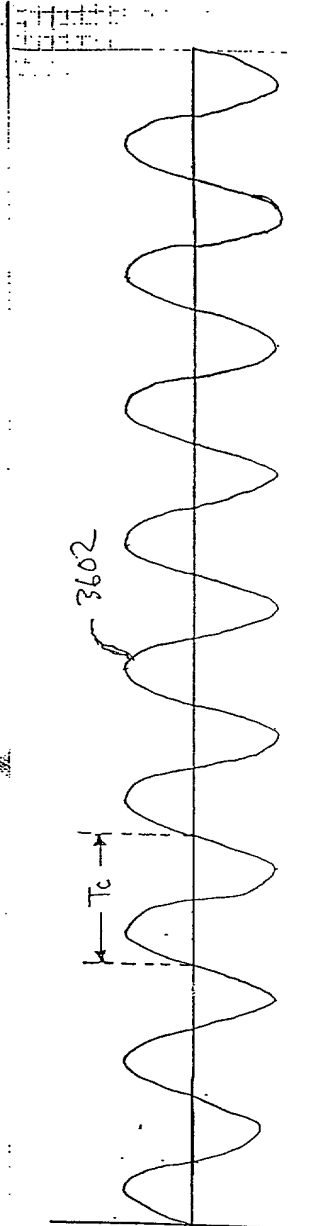


FIG. 36

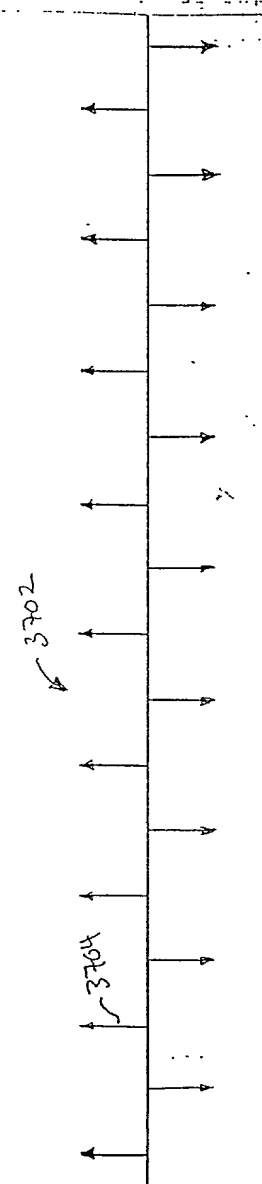


FIG. 37

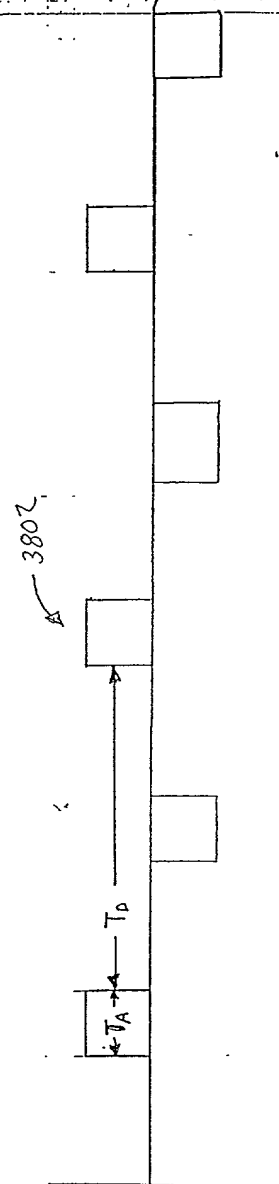


FIG. 38

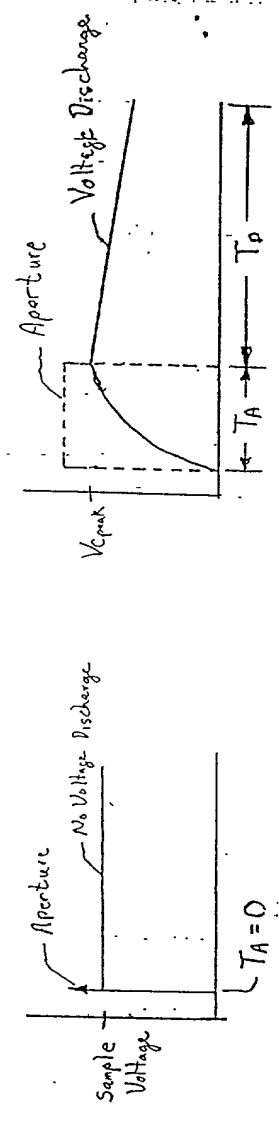


FIG. 39

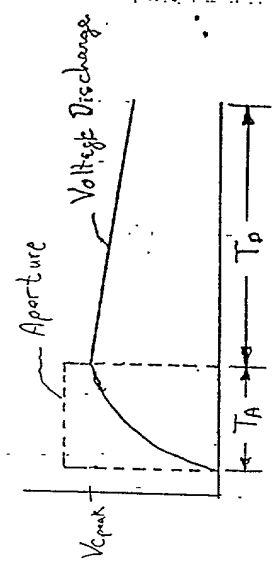


FIG. 40

FOI 15855860

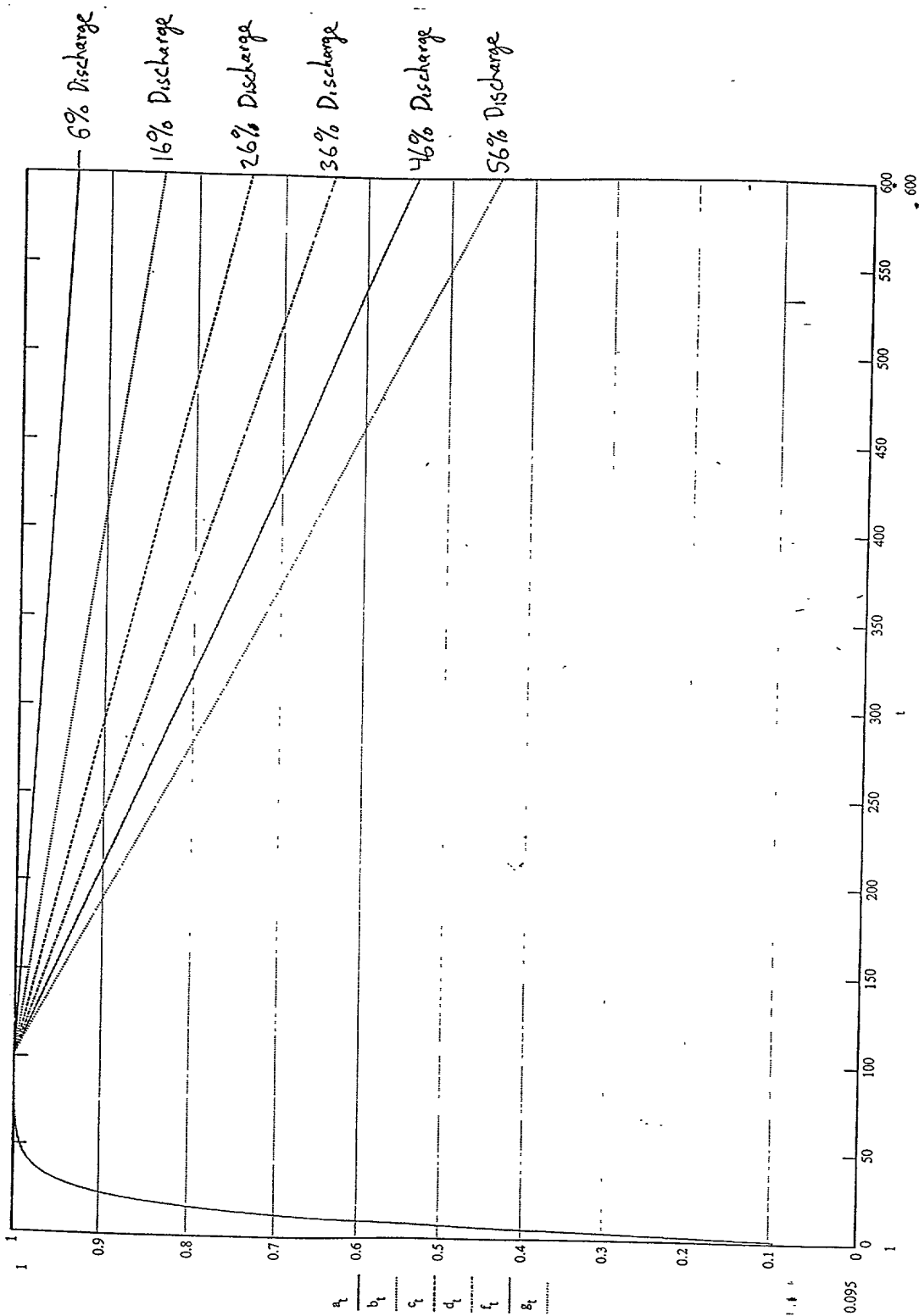
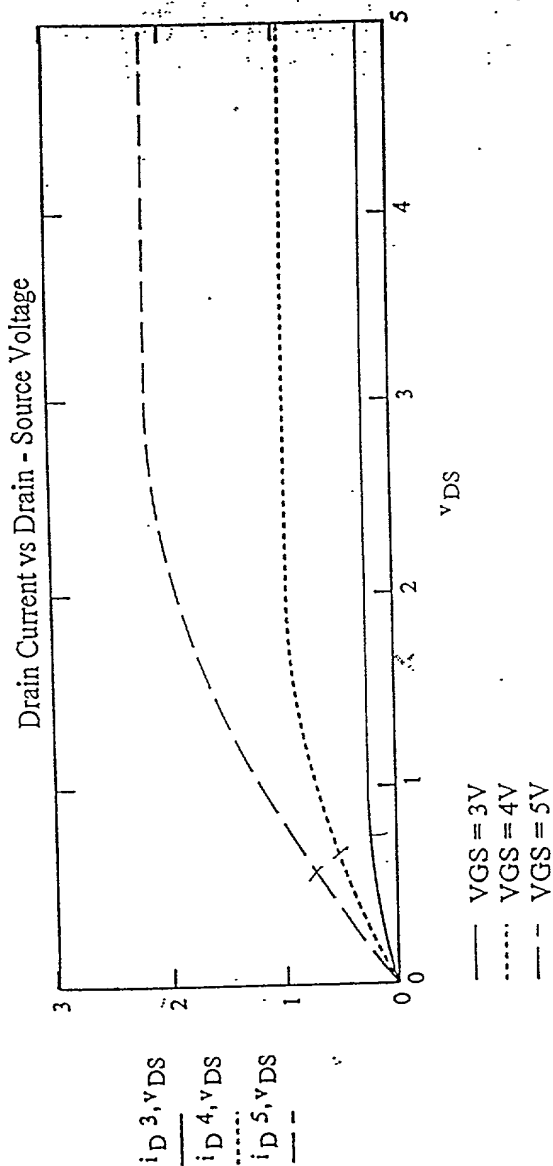


FIG. 41



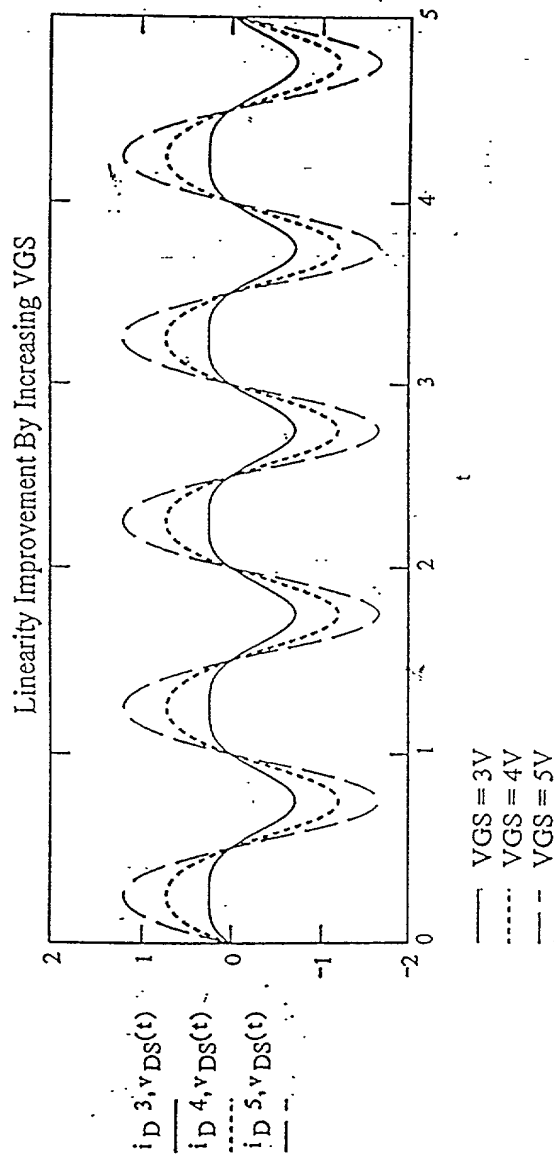


FIG. 43

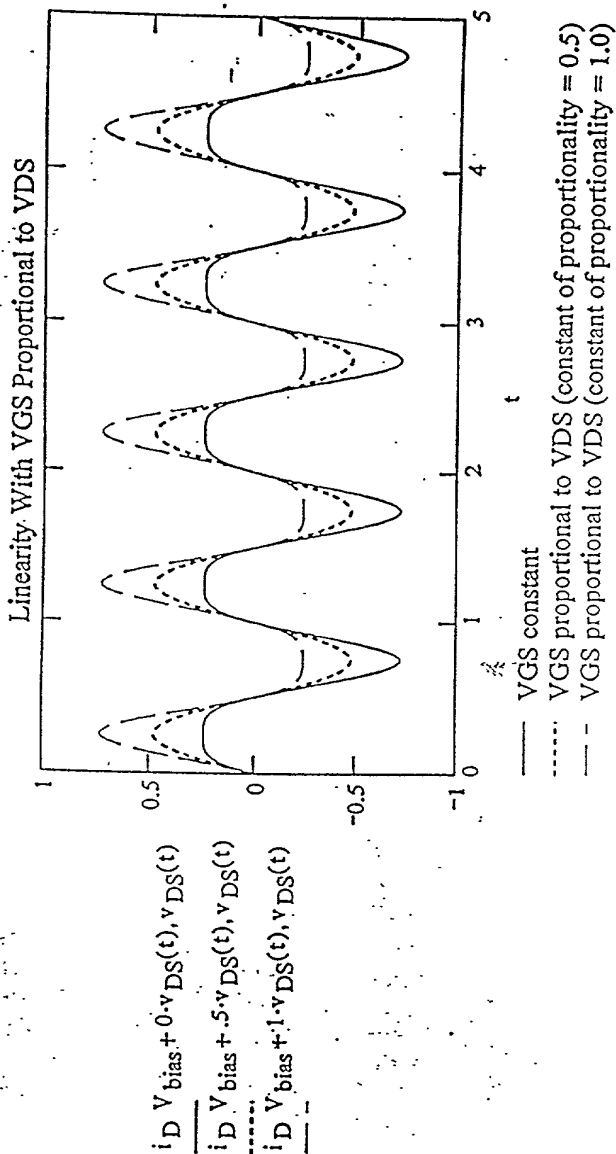


FIG 44

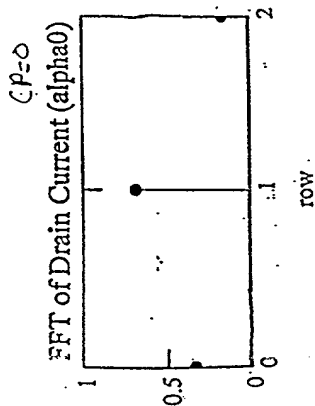


FIG. 45A

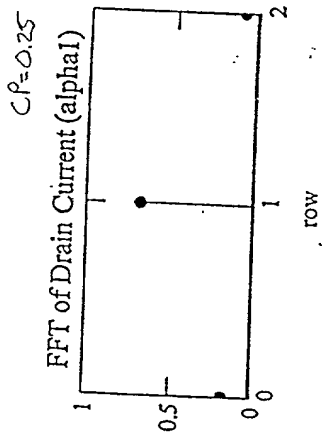


FIG. 45B

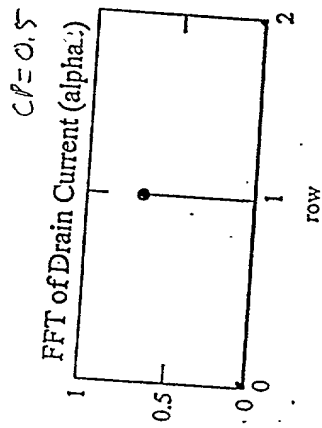


FIG. 45C

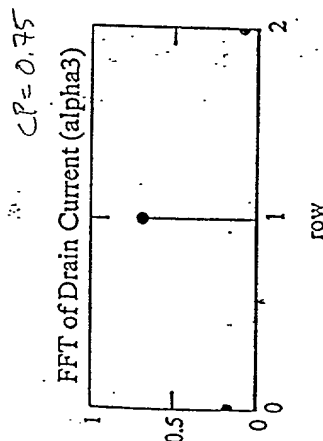


FIG. 45D

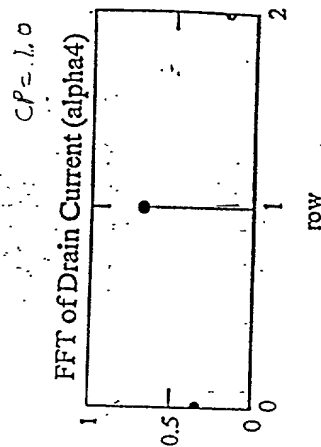


FIG. 45E

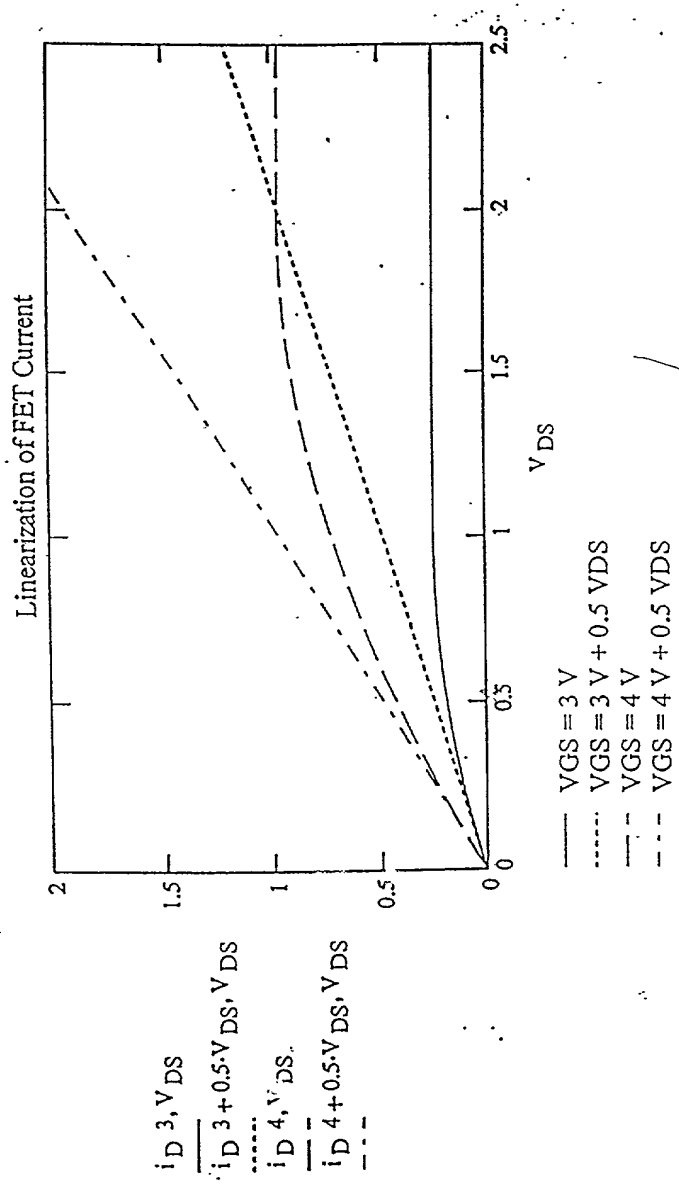


Fig. 46

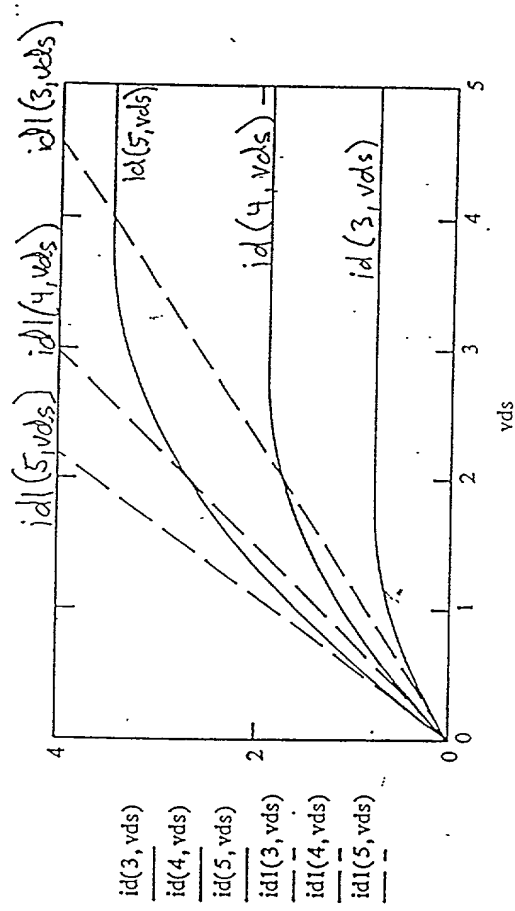
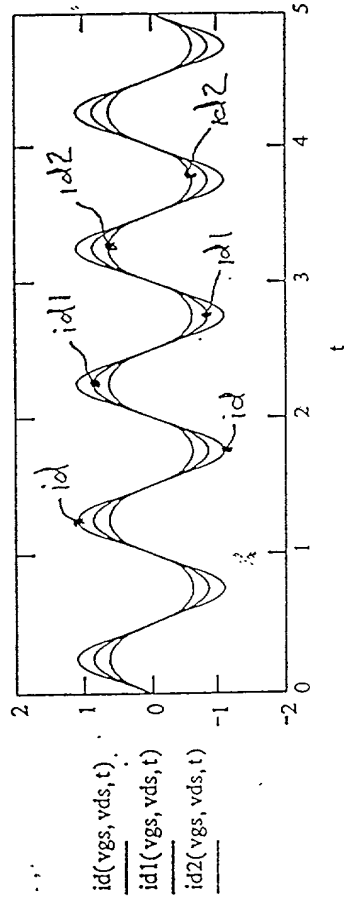


FIG. 47



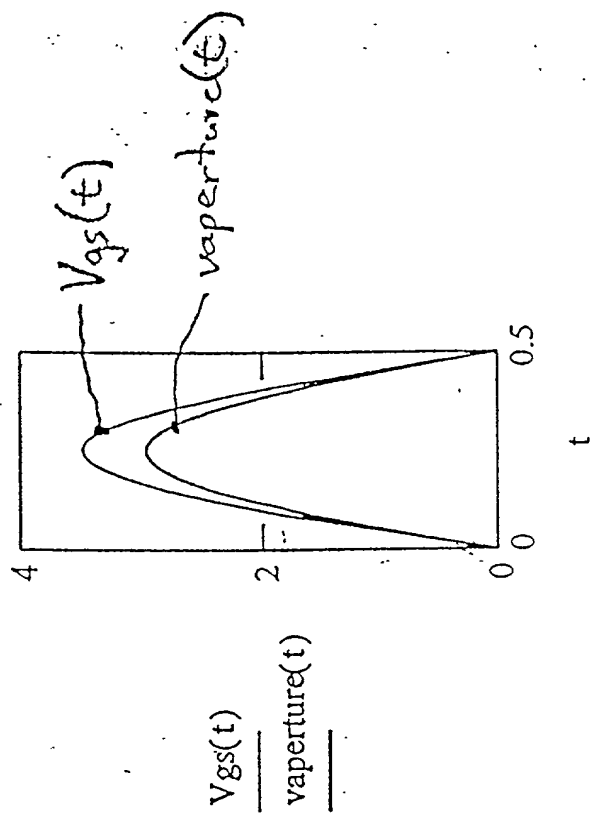


FIG. 49

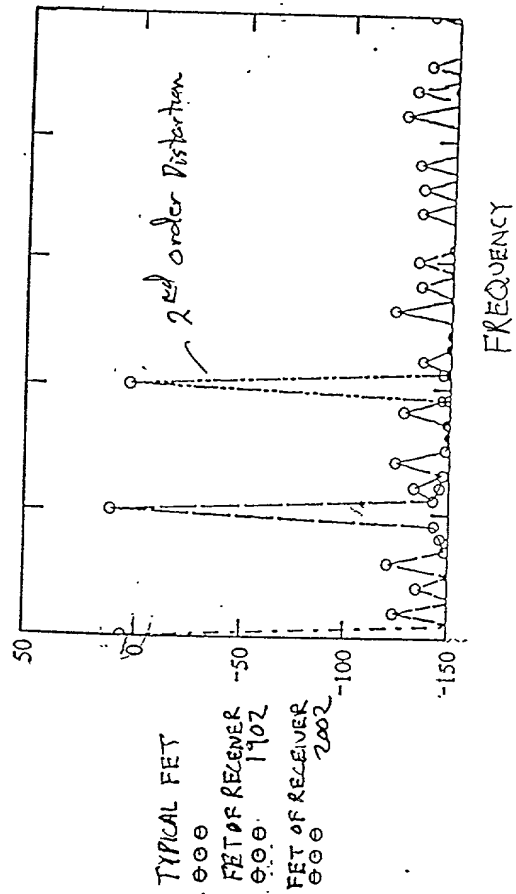


FIG. 50

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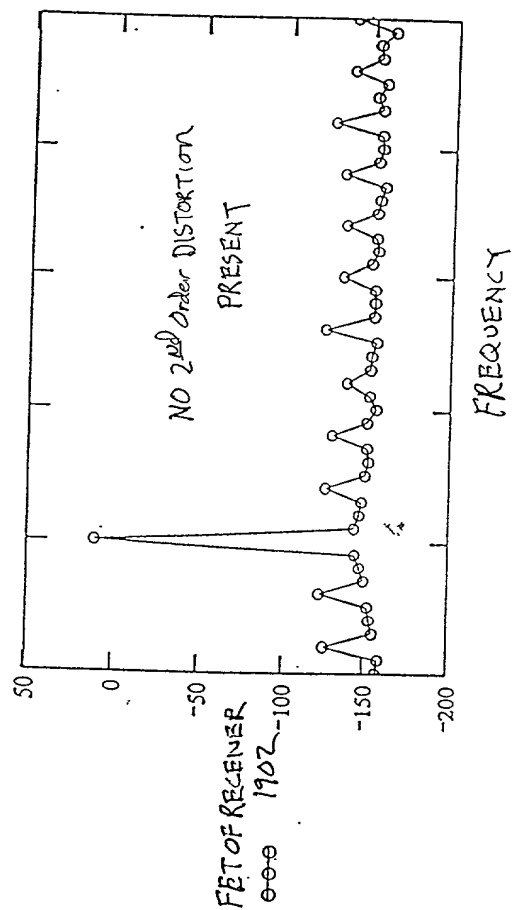


FIG. 51

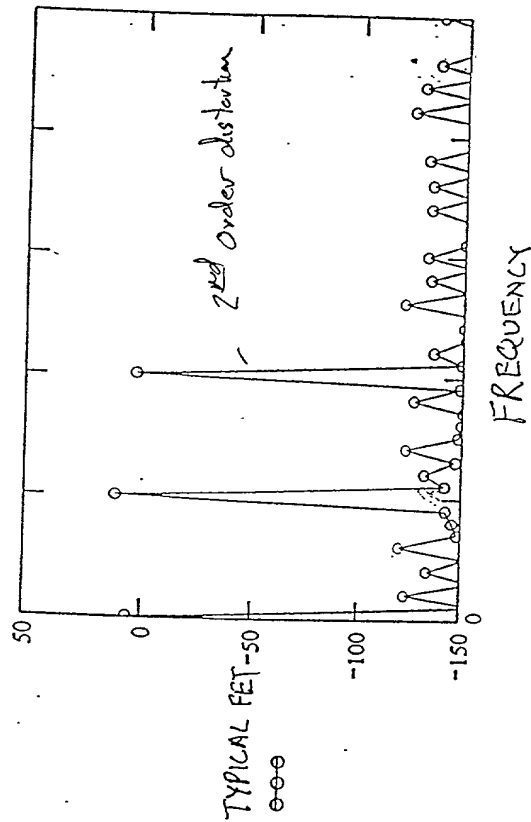


FIG. 52

0985851 051601

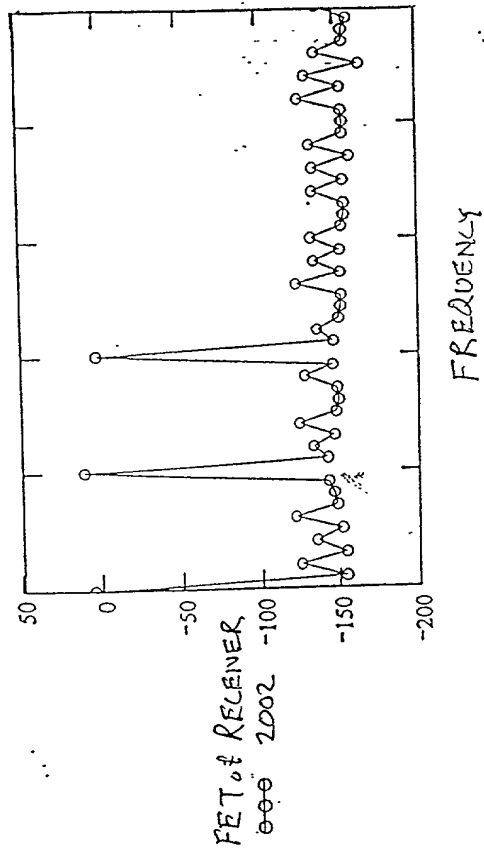


FIG 53

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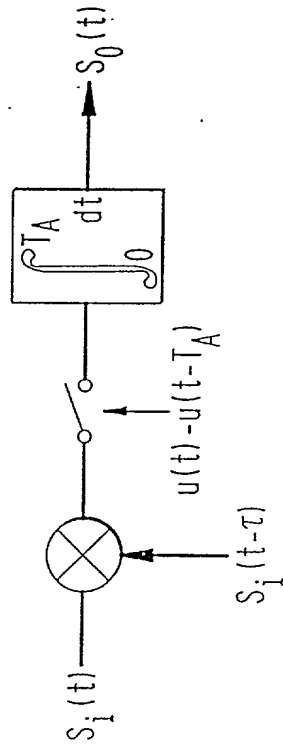


FIG. 54

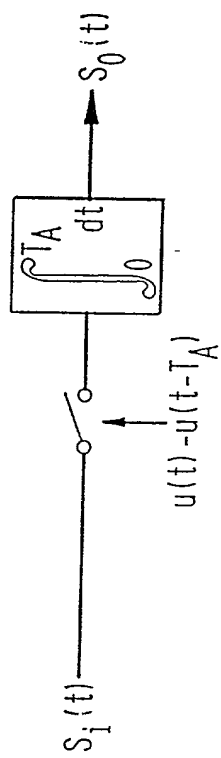


FIG. 55

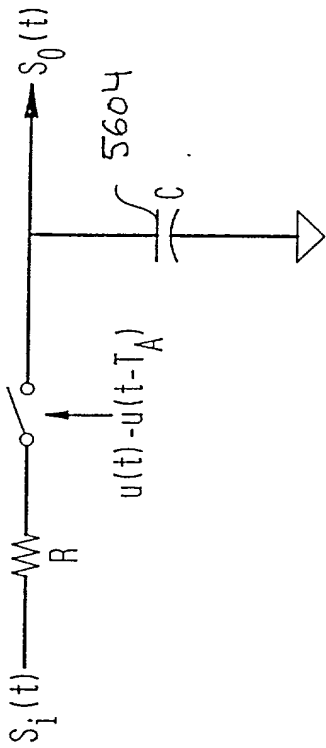


FIG. 56

UFT OUTPUT CHARGE TRANSFER

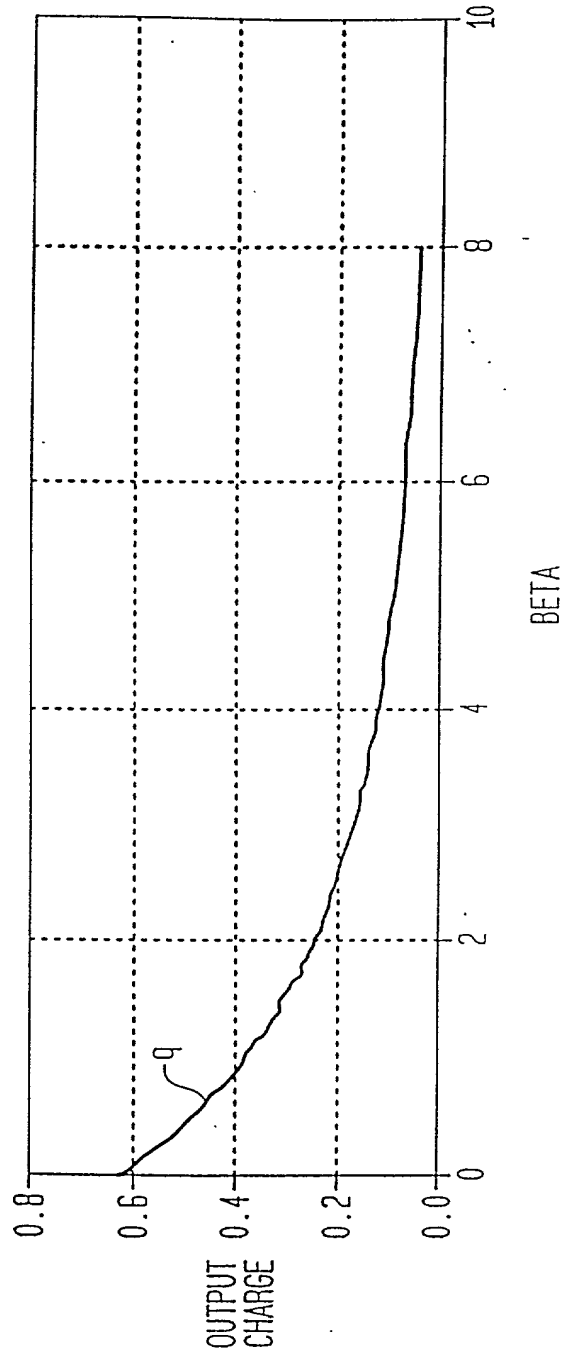


FIG. 57

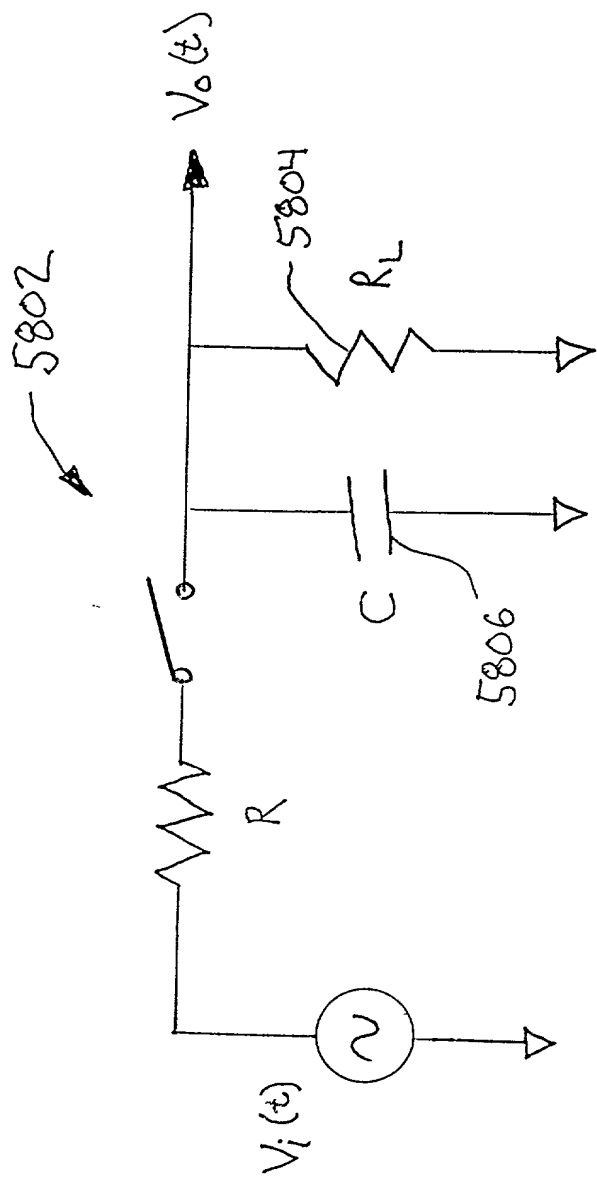


FIG. 58

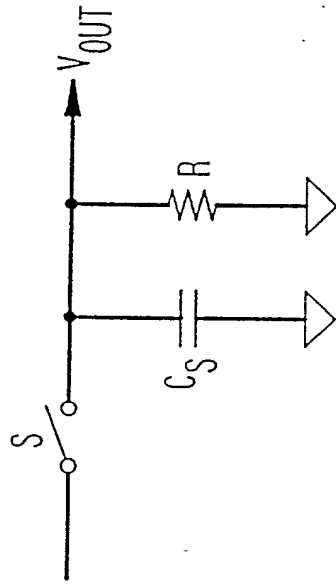


FIG. 59

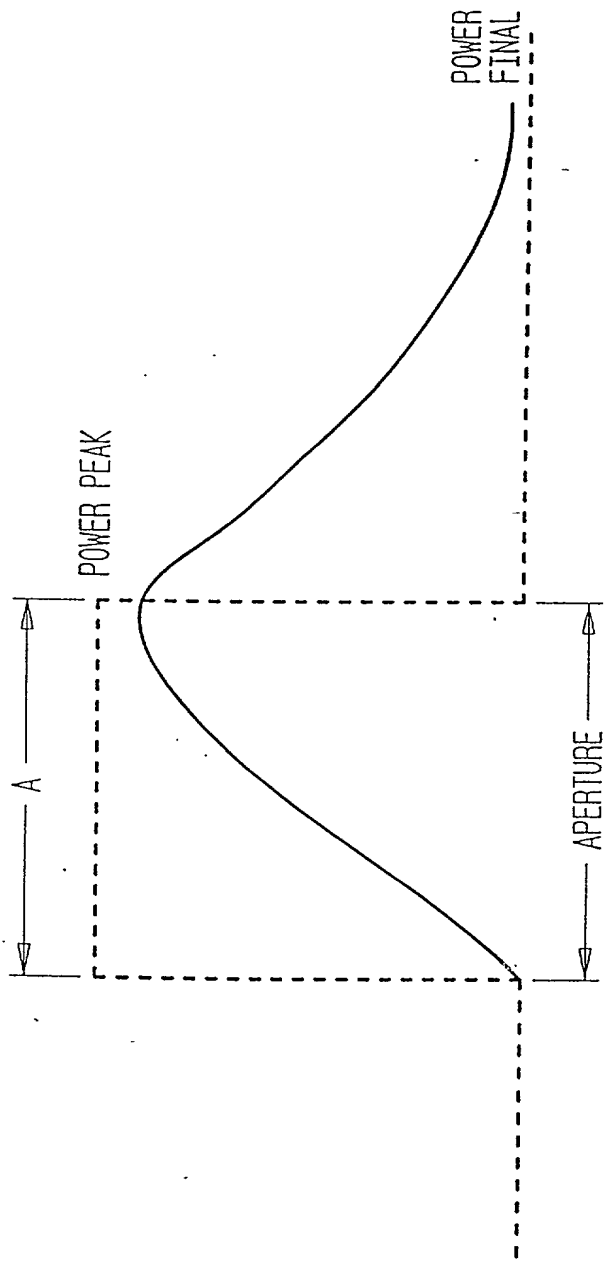


FIG. 60

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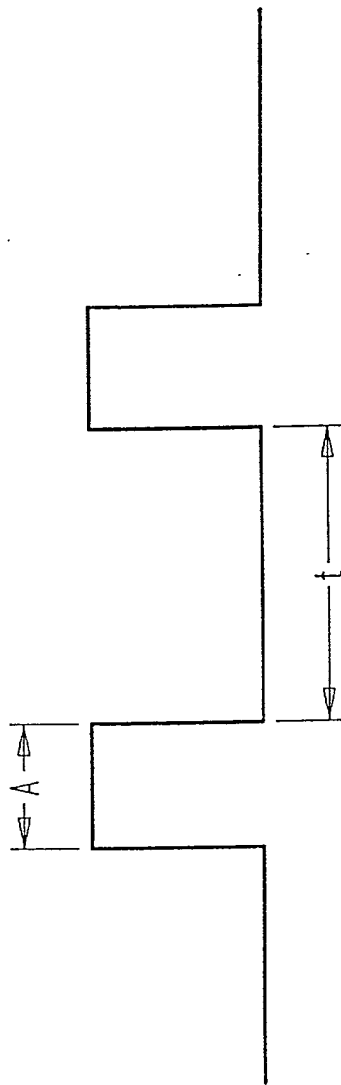


FIG. 61

0955551 054604

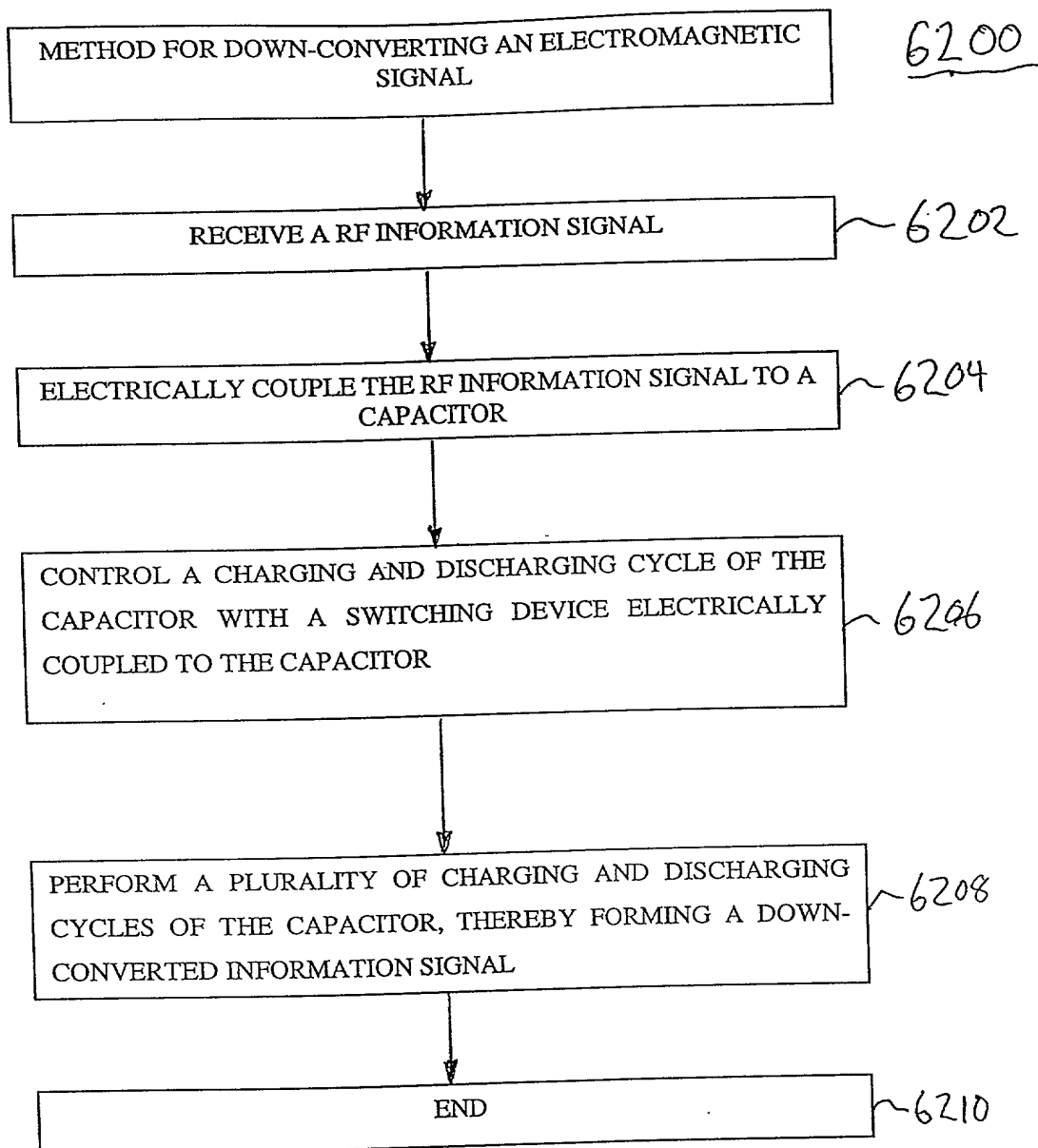


FIG 62